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IN MEMORIAM
Charles Josselyn.

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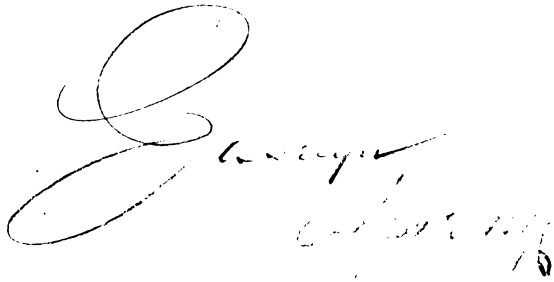
Rarely does a practicing physician write so sensibly and entertainingly of the common ailments to which the flesh is heir, as does Dr. Bowers in this compact volume. He has presented here, just the facts you want to know; he explains the various kinds of colds and what to do for them, and there is a chapter on insomnia which alone is worth the price of the book. Those predisposed to corpulency will do very well to follow his advice on "side-stepping stoutness."



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SIDE-STEPPING ILL HEALTH

Heart Disease and the Pace That Kls

BY JOHN B. HUBER, M. D.

THROUGHOUT the United States there has been, during the last ten years and more, a constantly increasing heart-disease mortality, while the mortality rate for consumption has been declining.

In 1914 organic heart disease caused the highest number of deaths in New York City, exceeding in its record consumption, which is generally, throughout civilization, the Captain of the Hosts of Death.

The tissues of that most vital organ, the heart, of its valves, its muscle, and its vessels, are grievously invaded during the course of rheumatism, pneumonia, grippe, diphtheria, and like diseases, by their toxins (poisons). This condition of things results in a great many preventable deaths because, through sheer perversity, many people, men especially, will not take the prolonged rest necessary for the convalescent. And so, though they may recover from the disease, they die shortly after and, like as not, suddenly. Elderly men are peculiarly unmanageable. One such, pooh-poohing doctors as a fussy, unreasonable lot, and declaring furthermore that "an old horse that once lies down never gets up," left his bed against orders, went downtown about "a business deal which couldn't wait," returned that afternoon a state of collapse, and died the next ly. Another man, in his prime, convalescent from pneumonia, the toxins of th disease had played sad havoc with s heart muscle, persisted in sitting in bed and playing cards with his y. Of a sudden he fell back on his pi and expired.

Unfortunately it lies but little in doctor's power to influence the geist: the spirit of the age. Unhee too frequently, are his warnings agai the stresses and strains of modern l against fast living and undue ind gence at table and bar, against ner breaking business strenuousness, agai excesses that must inevitably end in t wrecking of the body should it be tacked by disease. The doctor's no sense about apoplexy, about heighten blood pressure, about a man being on as old as his arteries; his little jo about rapid living leading to early d ing—how often is such "foolishnes justified in the listlessness, the tempe ture changes, the weak, quick, inte mittent pulse, the breath that com so hard, the blue lips and cold fing tips, the gray and dusky skin, the di tended veins in the neck, the pa around the heart: symptoms that t often have but one sequel—death!

SIDE-STEPPING ILL HEALTH

BY

EDWIN F. BOWERS, M.D.

BOSTON
LITTLE, BROWN, AND COMPANY
1916

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In memoriam
Chas. Josselyn

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SIDE-STEPPING ILL HEALTH

CHAPTER I

Eating to Live

THE first dinner party, the origin of all social life, was given by a gentleman named Pithecanthropus Erectus, an ancestor of ours, with a beetling brow, protruding lower jaw, and long arms reaching below his knees. He was covered with a nice thick coat of reddish brown hair, which was very useful as well as ornamental in those old days before they understood the utility of clothes.

This old great-great-grandfather surprised a stag, come to drink at a little pool in the

forest, directly under the spreading bough where Granther had his arboreal nest. Like a thunderbolt the old gentleman dropped beside the startled animal, and before the deer could say "Jack Robinson" he deftly and expeditiously knocked its brains out with a jagged lump of flint, which he had fastened to a tough club.

Then he shrilled the call to "meat", a call responded to by all the tribe within hearing of that raucous note. And they gorged themselves, much as did later the Babylonian sybarites and the Roman epicures — who consistently lived to eat. Granther's Paleozoic party grunted and guzzled its way through the feast, just as five hundred thousand years afterward Caligula and Elagabalus banqueted.

Time cannot wither nor custom stale our dietetic practices; for nightly a large proportion of those who can afford it — and many who cannot — valiantly eat and drink their

way through a seven-course dinner, rising from the table with all the mental alertness of an anaconda that has just warped its huge length over the crushed body of a peccary. This is highly commendable in a snake, which perhaps eats only once a month, but extremely detrimental to a human being who repeats gastronomic excesses from three to five times a day.

Man, in common with all other animals, is an organism built around a food tube. Biologically considered, he is nothing but a stomach with its appendages, an organized group of organs clustered about his alimentary tract. Yet all the marvels that he has achieved in social and economical life, every emotion of which he is capable, from the lowest to the most exalted, have arisen from the primordial desire to obtain nutriment, the instinct of self-preservation. Even commerce, in its final analysis, means simply conveying food, or the materials that can be

exchanged for food, from where they are plenty to where they are needed.

Small wonder, then, that for countless centuries man has prostrated himself before a deity so inexorable, a Mumbo Jumbo so insatiable, as the God of the Stomach. No marvel that he has declared allegiance to this three-pint water bottle of muscle, that he has swung the pendulum so that instead of eating to live he has lived to eat.

And, instead of hiding in a closet to indulge his appetite, unobserved of the world, as the pessimistic Nietzsche advised, he brazenly flaunts his physical necessities and excesses, and makes a function of them.

Which leads us to observe that humanity digs its grave with its teeth. Startling as it may sound, many more people die of overeating than from starvation. "Anything in excess is inimical to nature", said Hippocrates. And this dictum is recognized by advanced thinkers and dietists everywhere;

in fact, the ideas are being interwoven into the proverbial wisdom of the race: "Much meat, many maladies;" "More people are killed by supper than by the sword;" "Quick to the feast, quick to the grave;" "Feastings are physicians' harvests;" and many more crystallized out of our knowledge.

We eat to be sociable, and we refrain only when we can't hold any more. We eat when we have appetite; and when we haven't, instead of waiting for its normal return, or stimulating it by rest, oxygenation, or the sight and smell of agreeable food, we irritate it into seeming activity with a cocktail. This bears the same relation to a true gastric stimulant that a chicken fight does to gardening.

Alcohol creates a temporary congestion in the lining of the stomach, and also causes a slight flow of gastric juice; but this is of the same general plan as putting a grain of sand into the eye to stimulate a copious flow of

tears: worse, because the mote of sand is readily dislodged, while the alcohol is absorbed and effects a considerable lowering of the capacity for doing mental and physical work.

The generally accepted idea as to the amount of food required is that "a little too much is just enough." It ascends from here to "stuff in all you can hold." We lose sight of the fact that the system needs only sufficient food to repair wasted tissue, furnish energy and heat, and store reserve material, in the form of fat, for a rainy day; also that it is the amount digested and assimilated, not the total quantity ingested, that should govern the size of the meal that we inflict upon our over-distended stomachs.

No hard and fast rule can be laid down that will regulate this matter. Therein the patient must minister to himself, and be his own judge, or executioner, as the case may be.

However, the general rule might profitably be adopted of always rising from the table with a feeling that, if the worst came to the worst, one could be capable of stowing away another "portion" of pie or dish of dessert. This allows a wide latitude for variation. Let appetite tell.

Every one who can afford it — or, let us say, every one who is willing to render society service in return — should be well nourished. This does not mean to the point of plethora. Nor does it mean "getting up hungry from the table", which our extremist friends promulgate as the be-all and the end-all of dietetic philosophy; for chronic underfeeding is almost as pernicious as perpetual gorging: almost, but not quite, — for the Gorge Route is the most direct road to the undertaker.

But, other things being equal, the moderate eater who gets up from the table feeling that the last word has not yet been said to his

stomach, will get up for a good many years longer than the appreciative man who has backed his plumply packed food receptacle up against the wall of his abdominal cavity and made it cry "Hold — enough!"

By carrying out this principle, the clerk or business man of sedentary habits can accurately gage just about how much more liberal he ought to be to his hunger when the results of deep breathing, hard tramping, and the out of doors of vacation time call across the wastes of his famished cells.

The husky, red-faced clubman who is better to his appetite than he is to himself is much more likely to be found dead in bed, or to "shuffle off" when running for a car, than is the chap who takes good care of a nice weak stomach.

That little Italian nobleman who lived to be nearly a hundred admirably illustrates this point. He survived to hold Memorial Day services at the graves of all the wise

doctors who assured him that his period of sojourn in this vale of tears must, because of his weak digestive organs, necessarily be extremely brief. By omitting those articles of diet that disagreed, by masticating his food carefully, and regulating his habits, he became almost a centenarian.

Another factor in dietetics is that the stomach has no teeth. Whatever masticating is done has to be done in the mouth. While Mr. Fletcher's theories are too esoteric for use by those of us who have to work for a living, he is mainly correct; first, because thorough mastication and the mixing of saliva with the food are very necessary processes of digestion, particularly of starches and sugars. The action of the alkaline digestive ferment of the saliva (ptyalin) is necessary before they are in shape to be further acted upon in the intestines.

So, if one carves his hurried way by sheer activity of incisors, — preserving his molars

for fattening out his face, instead of grinding his food, — and then bolts the chunks of food the instant they are of swallowable size, an important element in starchy digestion has been neglected. Also, the stomach being toothless, his meat is not prepared properly to be acted upon by the gastric juices and converted into peptones. And even though he tries to make the *amende honorable* by chewing gum, assisting the insalivation of the hastily swallowed material, he does not overcome the damage. However, after due strenuous churning, the food mass is passed by degrees into the small intestine, where fermentation progresses even more rapidly than it did in the stomach.

This is but the beginning of his "misery" — only the bolter doesn't associate headache, loss of appetite, flatulence, nervousness, rheumatism, neuralgia, and all the protean manifestations of underoxidation with insufficient mastication.

Yet so it is. This doesn't necessarily mean that one must Fletcherize to achieve relief. A safe, sound, and conservative middle course is best. Thorough chewing does not imply, from a digestive viewpoint, that the food must be liquefied in the mouth, and "tasted and tasted" until the taster will not be conscious of the act of swallowing.

Another thing. We have thirty-six feet of intestine, whose function it is to digest and appropriate to the lacteals (the little ducts that convey the digested material into the circulation) converted food products, and then get rid of the débris. They require bulk to functionate upon, just as the kidneys require water. On a concentrated diet, or one Fletcherized so as to leave but a minimum amount of work for the intestines, a man would "go stale." A certain amount of work is needed by any organ. If it doesn't get it one way, it will another, and

with the food tube that "other" usually consists in raising mischief by autointoxication.

In other words, there being no bulk to combine with the end products of metabolism thrown into the intestines, nothing for them to "take hold of", they become inert and sluggish. This permits the reabsorption of these poisons into the circulation, and a vicious cycle of symptoms begins, — if a cycle can have a beginning. The process affects appetite and digestion, and that, affected, produces more poison, — and so on *ad infinitum*.

It is true, that the worthy Professor Metchnikof, in all seriousness, proposed a short time ago to prevent this reabsorption partially by amputating (resecting) a part of the intestines. The principle is sound; but it is doubtful if any considerable number of victims could be found to submit themselves to a major operation involving pos-

sibilities of extreme danger. We have not as yet heard that Professor Metchnikof has taken any of his own medicine — which is the crucial test of conviction.

Having determined the most important part of the question, namely, just how much and how to eat, the next point to consider is what to eat.

Right here is where the trouble begins; for, extending back into the earliest daybreak of history, there have been as many fads as there were foods. The first quarrel between Pithecanthropus Erectus and his wife arose over the method of serving venison. He wanted it *au naturel*, and she preferred it dressed.

And yet the question is a very simple one. The chemical composition of the body is similar to the composition of the foods that nourish it. The problem is to present, for digestion, those forms of diet from which the body may extract the maximum amount of

building material and fuel, with the minimum expenditure of dynamic energy.

Our physiological engineers know with a tolerable degree of accuracy the chemistry and heat value (calories) of the various foods. They also appreciate idiosyncrasies, liking, or distaste for the different foodstuffs. So the matter resolves itself into subtracting from the attainable dietary that which disagrees, and eating the rest,—always with regard to how much of each class one needs.

There are three great groups of food products that supply three different requirements. First in importance are the proteids (foods rich in nitrogen) which replace waste tissue; secondly, starches and sugars (carbohydrates) which furnish force and contribute to heat by oxidation; and, thirdly, the fats (hydrocarbons) which prevent undue loss of proteid structure, and conserve body heat by equalizing temperature.

It is obvious that the requirements may vary, and that care in their selection, based upon these requirements, is necessary in preserving physiological equilibrium. The Eskimo consumes tremendous quantities of seal oil and whale blubber, because the maintenance of his body heat requires this superabundance of hydrocarbon. The inhabitants of equatorial regions, on the contrary, have little or no necessity for hydrocarbons; therefore fats and oils are practically superfluous. A gramnivorous diet, with a low percentage of sugar, would be considered an ideal diet for them.

The normal appetite is a trustworthy guide. In general, what one craves is usually what he ought to have; not perhaps in the form he craves it, but at any rate in its chemical constituents. If, for instance, a young girl strongly desires chalk and slate pencils, give them to her — in the form of foods rich in lime. If a child — and all

normal growing children share in this — demands candy, see that he is supplied with plenty of sugar, in wholesome form. The chemistry of the body requires these things, and nothing but good can come from supplying them in reasonable amount.

In approaching those mosques of prejudice — vegetarianism, animalism, fruit, nut, and breakfast-foodarianism, — we advance with trepidation, hat under one arm, shoes under the other; for here we tread on dangerous ground. There is nothing the dyed-in-the-wool faddist so firmly believes in as the accuracy of his diet judgment, unless it be the fallacy of yours.

He is a knight errant, armed cap-a-pie in defense of his ladye, — the particular fad that for the moment obsesses him. We know; for have we not seen these Quixotes riding many a course, and breaking innumerable lances, in defense of no breakfast, fruit lunches, raw food, no food, raisins and

prunes, nuts and seaweed, whole wheat, all milk, sour milk, grapes, chocolate bars, and Heaven only knows what else, each firmly convinced that he has the original and open sesame to the Gates of Health?

Usually the less the enthusiast knows of chemistry and physiology, the more firmly convinced is he that he is right, and that you are wrong. It is almost impossible to get one who lives on nuts and other squirrel food, fruit, cereals, or vegetables exclusively, to understand that a well-rounded dietary is the only sensible one; that in order to hold down his job and still have reserve force when he gets home to entertain his wife and children, he must eat sufficient of the three classes of food to make up for loss of tissue waste, supply heat and energy, and lay up a small quantity of emergency fat.

And right here it may be profitable to remember that vegetarianism is the diet of enslaved, unprogressive, and conquered

races; and a diet rich in meat is that of the progressive, the dominant, and the conquering stocks. Nature knew what she was doing when she so constructed man that he would eat anything that didn't eat him first. If food satisfies the two great but neglected senses of smell and taste, it is usually good to eat. Unfortunately, somewhere on the long road up to our present exalted position we have abandoned those excellent and useful customs of sniffing and tasting. We must now take the cook's word for it, even though we get ptomaine poisoning as a consequence.

Perhaps the best system of diet is to take a little of everything, — not too little, nor yet too much, — omitting all those foods which experience has shown us to be harmful. And almost everything has its use. Sometimes it may be indispensable, as with fruit acids, or the alkalis of vegetables. Scurvy and grave constitutional disorders result from

lack of them. Even our mild-eyed and modest potato may possess virtues for which we have given it little credit. If the recent announcement that cancer is due to a deficiency of potash salts is true, our reprehensible practice of undressing this succulent vegetable before plunging it into the pot is absolutely wrong. For, if there is any basis for the theory, we have been boiling out the very elements that rendered us immune to this dread disease. At any rate, cancer is markedly on the increase, and so is the practice of boiling potatoes undressed.

It is a mooted question, this big subject of diet. It concerns every man, woman, and child on earth; for "men live without churches, or creeds, or books; but civilized man cannot live without cooks."

But even though he can't, perhaps he has achieved marvelously if he has learned that not eating, but living, is the *sine qua non* of existence.

CHAPTER II

The Sluggard Bowel

THE most dangerous disease that afflicts humanity is not smallpox, pneumonia, typhoid, or even tuberculosis, which levies its grim toll upon one out of every twelve civilized humans. It is common constipation, — not so much a disease in itself as a cause of other diseases.

Constipation is the head and front of the condition that so lowers the body's resistance that germs or toxins of innumerable dangerous and even fatal disorders are enabled to gain lodgment, and find, already prepared, a fertile field for development.

If the average human being had one — or better still, two or three — daily evacua-

tions of the bowels, about eighty per cent. of the medical profession would have to give up practice and seek some other means of livelihood. For, apart from the obstetricians, surgeons, eye and ear, nose and throat men, or other specialists, there would be little need for doctors. The absorption of poisons and toxins generated from feces retained in the intestine is the direct cause of many irritable conditions, headaches, neuralgias, some forms of neuritis, and a large and aggravating number of nervous conditions, including insomnia and unrefreshing sleep, nervous dyspepsia, melancholia, heart irregularities of functional origin, and scores of other conditions, which, like the deeds of the witches in Macbeth, are almost without a name, but are none the less material.

And the latest theory concerning epilepsy is that many varieties of it are caused by auto-toxemia. In any event, the correction of the condition of putrefaction in the

thirty odd feet of intestines has cleared up many epileptic cases of years' standing.

Constipation may be considered as only one segment of a vicious circle that so lowers body tone that the very causes that depress the functions tend to continue the first cause. Lowered nervous vitality is reflected in a lowered intestinal "punch." The peristalsis, or wormlike motions of the bowel, by which the refuse material of digestion and the body waste is passed along into the colon, or lower bowel, is inhibited because of insufficient nervous energy. Gradually the bowel fails to respond to the irritating presence of its contents. It becomes more and more atonic; and eventually nothing except the most drastic cathartics will move its contents.

While the mass is lying there, drying out, and covering completely the surfaces of the intestinal canal, — surfaces that should be clean for the absorption of food products, — putre-

factive alkaloids are being generated. Such dangerous organic poisons as indol, skatol, indoxyl, and numerous other powerful and toxic compounds are eliminated and absorbed into the circulation, once more to depress the functions, and continue the causes that developed them.

Chronic constipation is now recognized as one of the chief causes of anemia. This results from the general depression of the metabolic and assimilative processes. So physicians now, instead of depending so largely upon "iron tonics", are giving more of their attention to the broad general principles of "Cleaning out and keeping clean", realizing that if the system is put into a condition where it can manufacture its own iron for the blood, it will do so.

Another fact of tremendous importance to humanity, especially that large portion of humanity that industriously digs its grave with its teeth, is that many cases of kidney

disease, characterized by the voiding of large amounts of low specific gravity urine, containing albumen and waxy casts, are due to intestinal fermentation.

The sluggard bowel, by shifting a considerable portion of its work of elimination upon the kidneys, overworks these organs, and the nephritis is merely an expression of resentment on the part of the kidneys against this overwork.

The successful treatment of these conditions does not depend so much upon stimulating the action of the kidneys and whipping them to their duty, as it does upon seeing that the bowels do their fair share of the task of sifting out the slag and refuse.

Also, many of the diseases that affect the liver develop because that overworked organ has the extra burden of filtering out of the blood and neutralizing poisons which should never have been permitted to enter it.

Rheumatism, biliousness, and liver torpidity, congestion and enlargement of the gland, and even grave degenerations of the organ are a constant result of this overwork.

Paradoxical as it may seem, constipation often produces chronic diarrhea. Notwithstanding repeated evacuations, there is, with some patients, a gradual accumulation of hardened excremental matter on the walls of the intestines. While nature is doing her best to dislodge and eliminate this, she requires help in the form of some such lubricant as castor oil or liquid petroleum, or massage; even soapsud or oil enemas may also be necessary to dislodge the accumulation, and thereby correct the diarrhea and the constipation at one fell swoop.

There are many causes for constipation. Some of these, such as obstruction, adhesions, prolapse of the bowels, impairment of the quantity and quality of bile, hernia, and acute infectious diseases, imperatively de-

mand surgical or medical attention. This is also true of direct inhibition of the function through the nerve centers from such diseases as hysteria, or disorders of the spinal cord.

But the most frequent causes of costiveness are constriction of the abdominal muscles from snug lacing or from wearing tight belts, neglect to immediately answer calls of nature, or carelessness in establishing the habit of evacuation, eating too much concentrated food, which leaves but little residue after digestion, or by consuming such articles of diet — berries, for instance — as leave a large amount of irritating matter and cause thereby a spasmodic contraction of the intestines.

Neglect to flush the system with a daily intake of three or four pints of water is another common cause. Or occasionally the drinking of water containing a large proportion of lime salts may produce costiveness.

A weakened condition of the muscles of

the abdominal wall, due to excessive indulgence in the rocking-chair habit, is another prolific cause of indolent intestines. In fact, on general principles, no method of treating constipation which does not include allopathic doses of exercise has much hope of permanent success.

Infants are especially liable to constipation, particularly bottle-fed infants whose milk is modified by the addition of lime-water. This condition is readily overcome by substituting for the lime-water a teaspoonful of milk of magnesia added to a few ounces of plain water, this mixture to be used as though it were lime-water.

A milk diet is rather constipating at best, either for children or for adults, because it leaves, after digestion, so little residual matter for the intestines to "work" on.

Briefly, the chief factors in constipation are:

1. Lack of proper nerve tone.

2. Weakened, debilitated, or corset-choked abdominal and intestinal muscles.

3. Too much of the wrong kind of food.

4. Not enough soft water, or an excess of the other kind.

Any or all measures which restore nervous and physical vigor are effective remedies against constipation.

The diet is of particular importance. It should be light, and consist, to a great extent, of those foods which contain a large proportion of "hay", in the form of cellulose or fiber. We need this in order to give bulk for the intestinal muscles to exercise peristalsis on. Green and "watery" vegetables, as lettuce, spinach, celery, radishes, turnips, carrots, cauliflower, cabbage (preferably in the form of cold slaw or sauerkraut), rhubarb, tomatoes, water cresses, endive, asparagus, — in fact, all vegetables which contain little starch, but much fiber and water, are excellent.

All fruit is beneficial, except the puckering persimmon. Grapefruit, plums, oranges, figs, prunes, stewed apples and pears, grapes, berries (omitting huckleberries), are effective peristaltic stimulants.

A glass of cold or hot water, into which the juice of half a lemon has been squeezed, first thing in the morning on an empty stomach, is admirable.

Instead of wheat bread, oatmeal, bran, whole wheat, rye, or brown bread, with butter and honey, or fruit jam, should be used.

Soups, except those thickened with flour, should be a daily article of diet.

Bacon, fat meat, and rich gravies are a decided improvement over lean roast, or steaks and chops.

Buttermilk should be used in preference to sweet or skimmed milk.

Swimming, when it can be indulged, is the best of all exercises for constipation, as it brings into play practically every muscle

in the body, excepting perhaps those rudimentary muscles that wag the ears. Rowing, golf, horseback riding, walking, and all gymnastics and Swedish movements are helpful. Massage is also valuable, especially abdominal massage, for five or ten minutes before rising every morning.

All alcoholic drinks should be avoided. Also strong tea, cocoa, chocolate, and rice, potatoes, starchy food, and candy, except molasses candy, which is an excellent and agreeable laxative, especially for children.

Enemas and glycerin or soap suppositories are effective only as temporary measures. If too long continued they tend to form a habit of bowel atony.

Mineral oil, as before intimated, has a wide field of usefulness, especially when the fecal matter is dry and moved with difficulty. It is particularly valuable in constipation accompanied by bowel irritation or intestinal spasm.

Where medicines are required, the advice of a physician should be sought, as much harm may result from taking the wrong kind, or even from taking too much of the right kind of cathartic.

A tablespoonful of milk of magnesia followed by the juice of half a lemon, or an orange, is perhaps the least harmful, although the alophen pill has given good results.

Any and all methods which "work" are good methods. Even a poor method is better than none at all. For no method of treating constipation is quite so disastrous, so life-shortening, so disease-producing as utterly to ignore it.

A complete cure of the costive habit in every human being would add years to life. As a matter of race conservation, and for the increase of racial efficiency, this should be made compulsory.

CHAPTER III

Colds and their Causes

SOMETIME in the distant future a red-eyed individual who whoops forth a triumphant "Kerchoo!" will be hustled into a modified dog-catcher's wagon and rattled off to the nearest segregation hospital by a vigilant health officer, there to be detained until his "cold" is completely cured; for sneezing was especially invented by the patron saint of influenza for the express purpose of spraying germs where they could and would be most readily breathed in by the sneezer's unfortunate neighbors.

Sneezers are an infinitely greater menace to society than would be an equal number of healthy burglars. In the aggregate they cause

a greater increase in the mortality rate than half a dozen plagues put together. This is because the "germ theory of disease" is not a theory, but a substantial fact. The microbe of influenza is just as concrete as the individual it infects.

Heretofore most of us have held fatuously to the conviction that cold weather was in some way or other responsible for colds. So it is; but not in the way we think. Cold weather of itself produces merely frostbites, goose flesh, and chilblains; but unfortunately it produces such a love for fresh air that the careful householder develops the suicidal habit of hermetically sealing it up, and breathing it over and over again. This consumes the oxygen, — the vivifying element in the air, — and permits of a generous accumulation of carbon dioxid (carbonic acid gas), the inhalation of which lowers the body tone and the power of resistance, so that any of the myriad of germs which gather

where two or more organic beings are joined together in bonds of social intercourse may find comfortable lodgment, and proceed to increase and multiply.

One excellent way to avoid "catching cold" is to avoid contact with one who has it; and if this is not practicable, then to spray one's mouth and nostrils — the great wide ways by which the germs gain entrance into the system — with antiseptics, preferably incorporated in an oily base. Oil retards the locomotive powers of the germs, and prevents them from skipping blithely over into the crypts of the tonsils, or lingering joyfully in the naso-pharnyx or larynx, when they should be proceeding, as per schedule, directly toward the consuming acid of a healthy stomach.

Also it has long been conceded that a stuffed body predisposes to a stuffed head. The reason of this is obvious. Decomposition of unutilizable material in the system generates,

by fermentation, an excessive amount of uric acid in the blood. The normal alkalinity of the vital fluid is thereby decreased, and the acid content raised. Therefore the sudden chilling of certain areas of the body — notably those parts exposed to drafts — causes the precipitation of this acid, in the form of little crystals, in the joints, tissues, or mucous membranes.

This, by interfering with the free ranging of the phagocytes (the sanitary patrol) through the tissues, affords an excellent opportunity for the invading microörganisms to form foci of infection, which rapidly spread and increase as the germs gain in numbers and confidence. In fact, some enthusiasts — notably Doctor Alexander Haig, the world's greatest authority on uric acid — believe that all colds are due to a combination of three things, — a chill, a microbe, and a uric acid tendency that prepares a focus for the microbe's growth. But of these three,

they claim, the greatest and most indispensable is uric acid. They are vehement in declaring that a uric-acid-free individual might with impunity sit in a draft forever, with both feet immersed in a bucket of cold, damp water, and never catch a cold.

Be that as it may, it is significant that the remedies that give the best and quickest results in the treatment of colds are those which are equally efficacious in the treatment of rheumatism. For instance, active elimination — preferably by means of saline cathartics, flushing the system with liberal quantities of water, large doses of alkalis, sodium salicylate (or proprietary improvements upon it), which dissolve uric acid, and help eliminate it — seems to give the best results in cold, as it does in rheumatism. (In fact, this school contends that cold is merely gout of the respiratory mucous membranes, complicated by the presence of a busy microbe; that the microbe, of itself,

is impotent for mischief, requiring invariably an excess of uric acid in the blood before its powers for making life miserable can be manifested. This explains also why it spreads among those who are plentifully supplied with uric acid, while it fails to find lodgment in the tissues of those who are not.

The method practised by this school to overcome the tendency toward "taking cold" is to prevent the development of uric acid by a long course of "purin-free" diet. Purin is that element in the food, or which develops during its digestion, which is one of the distinguished ancestors of uric acid. It is found most plentifully in white meats, fish, fowl, and leguminous vegetables, such as beans and peas. It riots in tea, coffee, and cocoa. A favorite stamping ground for it is ale, porter, stout, and that cherished liquid food of our German brethren, beer.

Most cereals and fruits, a large list of vegetables, and nuts, milk, eggs, and cheese con-

tain little or no purin, or purin-forming material. So those who are predisposed to take cold easily might find it of peculiar advantage to modify their diet, and thereby prevent developing uric acid. It costs nothing but a considerable amount of self-denial, and may be ultimately worth all it costs.

It must be emphasized that the dangers of cold, especially the results arising from repeated attacks of the malady, are grave. That Captain of all the Men of Death, Tuberculosis, marches too often to a triumphant victory over lung tissue weakened by the congestion and inflammation of colds. Pneumonia begins with infection of the respiratory passages. Acute kidney disease, and a host of other fatal or merely painful and unpleasant ailments, have their origin only too frequently in a cold.

Many declare that a well-fed body is the most perfect of safeguards against taking cold. But by well-fed they do not — or

should not — necessarily mean those bodies which are fed into a state of plethora; for a thick neck and a heavy cold are just as companionable as are a peaked face and a piping cough.

Also it is claimed — and this is particularly prevalent among old ladies — that to "stuff a cold" is the eminently proper way of treating it. This is a delusion and a snare, as many a white headstone mutely attests; for if there is anybody in the world who doesn't need things to eat, it is a sick man. The loving Granny who insists that the groaning, toxin-laden, bug-infested individual needs "a little nourishment" is often an executioner in disguise. Even the animals know better; for it is practically impossible to induce a sick animal to eat anything except grass, or something that may exert an equally laxative influence.

On the other hand, the extreme starvation resorted to by certain enthusiastic, but sadly

mistaken persons is equally dangerous; for this results in exhaustion and progressive weakening of the body defenses. Irretrievable and permanent damage has been inflicted times without number by emulating the example of the Indian yogis, who dine not, neither do they sup, for days at a time. An emaciated, owl-eyed victim of a protracted fast may achieve a certain degree of distinction, not to say notoriety; but it will not do to keep it up very long. The body needs fuel, just as does any other machine, and when the fuel is no longer provided, something usually happens to the machine. Starve if you will, but starve temperately, and in moderation.

A prolific source of colds is an unclean mouth. Bad colds have been frequently traced to bad teeth. That disease known as "dental caries", which causes discoloration and erosion of the teeth, particularly at the gum margins, is the cause of numberless

attacks of influenza. These decayed pockets afford magnificent harbors for all sorts of germs. As many as thirty-three varieties have been counted by one microscopist. Among this malodorous host it is not difficult to find eager cohorts of cold microbes awaiting the first favorable opportunity — as when the system is run down, or fatigued, or chilled by exposure — to "Cry 'Havoc', and let slip the dogs of war." Therefore, if you are in the habit of catching cold upon the slightest provocation, or upon no provocation at all, see a good dentist, and block this avenue of infection by having all the germ harbors in your teeth polished off or filled up.

Wet feet and drafts, by interfering with the normal circulation of the blood, reduce the vital resistance to a point where colds are accumulated with scarcely any appreciable effort. The effect of wet feet in lowering resistance is particularly marked. This is interestingly shown in the case of some birds.

When a hen, which is ordinarily immune to the germs of anthrax (splenic fever) rubbed into her skin, is forced to stand in a few inches of cold water for an hour or two after inoculation, she speedily dies of the disease.

The moral is: Have a care that your feet are kept warm. Taboo the openwork stocking, the diaphanous hose, and the low shoe, especially when wading around in the sleet and slush. If your esthetic sense balks at this arrangement, then wear them by all means, but put rubber boots on over them.

Our osteopathic friends claim that colds are produced by an overtension or "tightening" of the muscles, particularly the muscles of the neck, which causes a displacement of one or more of the neck vertebræ. This tissue tension interferes with the free circulation of the blood, causing a retarding of the flow. The venous blood "backs up", and congestion results. This may have a founda-

tion of truth in it; although it would be difficult to figure out how this theory can be reconciled with the fact of Mamie's wet feet and resultant running nose, or Willie's catching cold from sitting beside a boy in school who had the sniffles.

However, osteopaths can, and very frequently do, by expertly manipulating, restore normal circulation to the parts. They relieve the tightness of the neck muscles and the tightness of a cold simultaneously. In "loosening" a victim's head and backbone they loosen his influenza, especially if they catch it when it is young.

There are many thousands who believe that a cold has to "run its course" or "wear itself out." And the curious part of it is that this is true — in their experiences. This idiosyncrasy, this marvelous human equation, is one of the things that make the practice of medicine so fascinating. What will cure one may have absolutely no effect

upon the second, and it may, in rare instances, kill the third.

We can also be coddled into susceptibility to colds. The Spartan of old, who wore the same toga summer and winter, was never ill, or if he were, he and his historians neglected to mention it. As a matter of fact, he was tough. He had to be. If he wasn't, he died young, and so wasn't troubled much with colds anyway. But Spartan methods — such as the morning cold bath the year round, just as it flows from the faucet — will work wonders in increasing body resistance. Of course this is not adapted to the shivering, blue-lipped individual who doesn't get rid of his goose pimples — following a cold tub — until noon. Only where a brisk reaction follows does a cold bath do good.

This same objection applies to "sleeping out" in the winter. Many anemic, badly nourished patients, despite weakeningly heavy loads of blankets, are so busy trying to

keep warm that they haven't time to sleep. And without sleep they do not knit up many of the raveled sleeves of care. In other words, they do not make blood and increase resistance by securing a normal amount of rest, as they would were they to sleep under a roof, with plenty of fresh air coming through open windows, but with its keen edge tempered by contact with warmed walls and floors.

The consideration of cough, in its relation to cold, is entirely too involved a subject to be dealt with here. It will suffice to say that where a cough is associated with a cold, and does not exist merely as a reflex from some quite remote condition, it should not be knocked senseless with opiates. It is doing its best to dislodge and eradicate a few billion germs. It should be encouraged and "loosened." Spitting should be facilitated.

Much hope is now aroused by the recent announcement of the discovery of a vaccine to cure colds. This is composed of dead

organisms from a person afflicted with influenza, and is administered under the same principle as antityphoid vaccine. It promises well. But our present interest in "cold" is chiefly preventive.

So, to prevent catching cold, never permit yourself to be sneezed or coughed at.

Never put your fingers into mouth or nose.

Spray the nose and throat frequently, especially on coming from the church or theater, with a mild antiseptic.

When chilled take a hot foot bath of twenty minutes' duration, to equalize the circulation.

Save the hot whisky and other alcoholic "cures" for a time when you are better fitted to withstand their harmful effects.

Eat little — and make certain to get rid of the residue of that little.

But if, after all, you should get a cold, keep it. Don't pass it on to your neighbor.

If everybody were to follow these suggestions, nobody would ever need them.

CHAPTER IV

Why are Coughs?

AS a general proposition a cough is nothing more or less than a protest against irritation. The irritation may be near by, right around the corner, or remote from the scene of its apparent origin. The main trouble with coughs is in our treatment of them. We have been classifying and labeling them as a condition; whereas, with the possible exception of whooping cough, — which is what we call it, and more, — they are only symptoms.

The condition, the real Why, may be anything from an inflamed middle-ear to an irritated stomach. It may even have its origin in the abdominal organs.

Don't "stop a cough." Stop the thing that causes it, and the cough will stop itself. The annoying cough is really one of our best friends. In its crude way it is either trying to warn us of the presence of disease, or of conditions from which disease might develop, or it is doing its best to dislodge or eject from the premises whole cities and principalities of virulent microbes. In fact, this is one of its blue-ribbon attributes. If we only realized it, this ability to keep on, and keep on keeping on, despite the discouragement of morphine, codeine, heroin, and other less dangerous things continually used to reduce it to a state of coma, entitles a cough to a Carnegie medal for persistence.

Take, for instance, the troublesome "tickling" cough caused by an elongation of that little pendant called the uvula, which droops from the back part of the soft palate. We may have had considerable use for this ornament in those distant days when we breathed

through gills and proceeded through our natural element by gracefully flapping our tails. But we certainly do not have much use for it now, unless we turn the matter upside down and inside out, and look at it from the pecuniarily selfish viewpoint of the doctor or the undertaker.

However, this lengthening of the uvula, and the irritating effect upon the mucous membrane of the larnyx or the base of the tongue which results in the "uvula cough", is merely an ocular demonstration — to those who can read and run at the same time — that there is catarrh in the pharynx, or some enlargement of the tonsils, which may hitherto have escaped notice.

If, now, instead of trying with determined obstinacy to stop the cough, we turn to and cure the pharyngeal catarrh, or relieve the swollen tonsil, the uvula shrinks back, and minds its own business. Sometimes, however, from having reached out a warning

finger too long, — like the Indian fakir who holds his arm above his head until it grows rigid in that position, — the uvula loses its power to contract again. Nothing remains then but to part reluctantly from the little sentinel, which we accomplish by dexterously chopping its head off.

The cough caused by protruding tonsils is particularly persistent when we lie down. Munchausen's lion story suggests the method some of us follow in dealing with this kind of cough. He said he got rid of his biggest lion by waiting until the animal charged him full speed with open mouth. Then like a flash he thrust an arm down the beast's throat, grasped the tail, and with a quick jerk turned the lion inside out. The lion continued to run; but being headed in the opposite direction soon eliminated itself as a source of danger.

This method of dealing with lions is about on a par with our method of cure when we

pour a lot of "cough mixtures" into the stomach of the victim with enlarged tonsils. Not only do we fail to cure his cough, but we destroy his appetite and his powers of assimilation. We also put him into a condition to fall an easy prey to other dangerous conditions; for we have intoxicated his phagocytes (the little "white soldiers" which feed upon disease germs). If the soldiers are paralyzed by drugs, they are as helpless as any other paralytic. So, irrespective of how vociferously they thrust upon us the advice, "Stop that cough before it stops us!" let's wait until we find out — from some one who knows — what it is we are to stop.

In children, and to a lesser extent in adults, adenoids are a frequent cause of cough. The presence of these vegetating growths may usually be suspected in every child or adult who is a persistent mouth-breather. The expression, or lack of expression, the hanging jaw and noisy breathing, the im-

pairment in hearing, the peculiar muffling of the voice, and the short, dry cough, — these point the trained observer to the proper course. He can, in infants, relieve this form of cough in thirty seconds by simply passing the index finger up the passage leading from the mouth to the back part of the nose, and sweeping these growths free.

The mouth-breathing habit associated with adenoids is in itself a frequent cause of cough. Also it is responsible for the nocturnal solo. It may be noted here that man is the only animal that ever sleeps sprawled out on the flat of his back with his mouth wide open. As a result of this practice the throat becomes dry and irritable from taking in air that has not been warmed (or cooled), filtered, and moistened by being drawn through the nostrils. The resulting cough is a loud, sharp bark, repeated at short intervals.

The cure for this form of cough is ridiculously easy. Simply wear a little piece of

adhesive plaster pasted vertically across the mouth at night, continuing for a few weeks or months, until educated to breathe properly. In addition to curing coughs originating in this open-mouthed habit, snoring and the sometimes dangerous practice of talking in one's sleep are also corrected.

Of course all forms of catarrh, including hay fever, affecting the respiratory passages, produce irritation, frequently manifested in attacks of coughing. The air passages and the "voice box" should be put into good condition by a qualified expert, bent nasal cartilages straightened, enlarged turbinated bones — the two that support the bridge of the nose — pared down to normal, and attention paid to bringing the system up to par.

Right here it may be pertinent to mention that the nasal douche so universally employed is often responsible for distressing coughing spells and "catarrhal headaches." Not only the fluid itself may be irritating, but it may

penetrate the bone sinuses, or openings. One of the gravest dangers, in fact, is that water may reach the middle ear through the Eustachian tube (the little canal running from the nostril to the ear) and cause suppuration and middle-ear abscesses, — one of the most painful ills the human body can suffer.

Remedies directed to the relief of catarrhal coughs, as coughs, have about the same general effect as have moonbeams on the growth of cucumbers. In fact, they are about on a plane, in point of utility and common sense, with the toothless old fallacy that "gin is good for the kidneys."

Whooping cough is one of the few varieties of cough that are all wool and a yard wide, in that they are what they are represented to be. Yet even whooping cough has been caught in the act of deception. The whoop has been separated from the cough and shown to be merely a symptom of a general

condition caused by germs identical in nature with those which cause distemper in dogs and "snuffles" in rabbits.

This demonstrates that whooping cough may not only be transmitted from children, but also from infected animals. In any event, parents should learn that various diseases are "caught" from pets, and that germs are germs. In connection with this distressing and dangerous disease, it is encouraging to know that Doctor Emil Roux of the Pasteur Institute in Paris announced last June the discovery by two French physicians of a method of preparing a solution containing living whooping-cough bacilli. This solution he injected into one hundred and twenty-two children suffering from whooping cough. Fifty of these children recovered in less than three weeks; whereas, under ordinary treatment, the mildest attack lasted two months. All of which is helpful, and a step in the right direction.

None who have ever listened month after month to those pitifully ineffective efforts to dislodge that which was eating into living tissue can ever forget the shock, the horror, the cruel remorselessness, of the tuberculous cough. For what seems an interminable time the poor victim gasps and strangles, finally to expel a meager portion of that which is slowly sapping his life. More ominous still is the telltale spurt of red. If ever a patient needs expert, competent attention, he requires it in tuberculosis. He needs remedies that will facilitate expectoration, with the least deleterious effect upon the digestion, and just the right amount of sedative to relieve the acute irritation, yet not lock up the secretions.

Fortunately, the modern treatment of tuberculosis has worked miracles in relieving and curing those who but a few years ago were considered doomed. Now, practically every case, if it can be seen in the early

stages, and if the patient is so situated that he can afford to rest for a period, is curable. We are gradually learning to correct this form of cough by means of sunlight, fresh air, good food, hygienic living, and such drugs only as are necessary to produce the greatest amount of action with the least amount of reaction.

While we are on this subject, consider the husky and unnatural voice and the hoarse cough that come the "morning after the night before." The "party" may have been a glorious success. But did you notice the cough? That cough warned you that vitality was lowered, and that the lungs were being driven to their utmost in the attempt to extract all the oxygen possible from every breath of air. Oxygen is to life what fuel is to a boiler. It is the thing that makes life live.

When sufficient oxygen cannot be forced into the system, or when there are certain

poisons remaining in the blood, as follows excessive drinking, something is going to let down. And that something is usually a weak spot in the lungs. It generally clears up again, unless your constitution happens to be deficient in resisting power, and some one should cough or sneeze a few tubercular germs in your direction. Then you are likely to furnish these germs with a snug harbor in your weakened, underoxygenized, inflamed lung cells. Thousands of cases of consumption have started in just this way.

If you must get drunk, go into training for it, get into the very pink of condition, — and afterward sleep off the effects, first eliminating all the alcohol possible through the pores in a Turkish bath; then sleep in the open air, or in an exceptionally well-ventilated chamber. Never get intoxicated when you are fatigued. Be fit in every way; for in proportion as you are tired, a "jag" will do harm, — the more fatigued, the more harm. But perhaps

the surest way to miss contracting a "morning after" cough will be to save all your alcohol for the alcohol lamp.

The cough of pneumonia is another that is not wise nor expedient to stop before it has done what it started to do; that is, to help eject from the lungs the billions of pneumococcus and other germs that cause pneumonia, and also the germ products that are filling the lung cells. Any attempt to stop this cough may result, first and foremost, in locking up the secretions, and next, in confusing the symptoms. Skillful, prompt action is necessary in this dangerous disease. There is no place here for the amateur and his "cures." In pneumonia it is necessary to do something, and do it quickly, — or pneumonia will do it first. The main thing is to equalize the circulation, keep up the strength, and, if unable to abort the disease, prepare the patient for the crisis. Don't try "cough remedies" in pneumonia, unless it should be

on yourself, and you don't care much what happens to you.

Some people are highly susceptible to changes in temperature. A sudden "drop" will start them off into whoops of protest — usually of a dry, soul-shaking nature — at the injustice of it all. A mild oil spray, plain, or in combination with some of the essential antiseptic oils, affords the best and quickest relief. If the "temperature cough" is "moist", on the other hand, the chances are that one has bronchitis, and needs medical attention.

Those who work in an atmosphere where there is much dust, — as cigar makers, knife grinders, glass workers, potters, coal miners, and others, — suffer from severe and sometimes painful attacks of coughing. It is obvious that opiates, in fact, medicines of any kind, are comparatively valueless here. The only measures that promise any relief (provided the self-evident one of securing

another form of occupation is impossible) are to have the nose put into perfect condition by a specialist, and then wear a gauze guard loosely filled with absorbent cotton every moment of the time while exposed. This is simple, and far more sensible than, for the sake of foolish pride, to go on and develop "knife grinders' consumption", or "miners' asthma."

A form of cough frequently met is the "nervous" or "hysteric" cough. This is usually a short, apologetic sort of bark, apparently beyond all power of the individual to control. It is often due to self-consciousness, autosuggestion, or irritation of the pneumogastric nerve (the nerve running between the stomach, heart, and brain).

This is a sort of pussy-footed cough, one that never seems to get anywhere, yet sits tight, — like the Old Man of the Sea on the shoulders of Sinbad. Its aggravating persistence is the most annoying thing about

it, and, strangely enough, it is infinitely more annoying to the relatives and friends of the cougher than it is to himself. Some of these victims would, no doubt, be willing to pay well for any magic compound that would make them unconscious of the dripping-water torture of having to listen to that low, quick bark, with the "I take it all back" air of irresolution about it.

If it is a little, anemic, narrow-shouldered man who is afflicted with nervous cough, an almost certain cure is to have him marry a big, husky girl, who could eat him alive. By some inscrutable process of nature he immediately begins to tyrannize over her, and in the process of teaching her to eat out of his hand he forgets all about his nervous cough. And if the cough victim happens to be a frail wisp of femininity, the kind guaranteed to faint if a door should slam suddenly, marry her — if it lies within human match-making ingenuity — to a burly six-footer.

While she is training him to jump through, roll over, play dead, and otherwise conduct himself properly, she will cease to cough.

Then we have "reflex" coughs. They arise from irritation and pressure upon one or more organs, perhaps quite remote from cough headquarters. The "stomach cough" is perhaps the most common. Some one of a dozen things goes wrong with this organ. It communicates the tidings to the pneumogastric nerve, and this in turn conveys the news to the stopover station near the Cough Works. These sound the alarm, and notify various and sundry who may be within earshot that something is wrong down the line. It is just about as sensible to throttle this cough in the throat as it would be to attempt to put out a blaze in the cellar by chopping a few shingles off the roof.

Other reflex causes of cough, more difficult to diagnose, arise from relaxation, or a "watery" condition of the respiratory mu-

cous membrane, due to heart or kidney disease. A thorough examination with special reference to the excretions, followed by treatment directed to the removal of the condition, is the only course that promises definite results here.

Sometimes the cough arises from pressure of a tumor in one of the abdominal organs. This kind of cough is readily cured, — if the tumor can be located and removed.

Certain odors have a curiously irritating effect upon some persons, causing protracted attacks of coughing. The effluvia from stables, or the disagreeable vapor from gasolene combustion, or the acrid gas of formaldehyde, used as a disinfectant, are perhaps the greatest offenders in this connection, acting in some instances almost as violently as would the presence of a minute foreign body in the windpipe.

These are the principal reasons why we cough. It can readily be understood that a

cough may be almost as complicated as an attack of rheumatism. It usually speaks in a foreign tongue, and must be translated into terms of symptoms before we can find out what it is all about. And when we have found out we may have to treat it with the distinguished consideration we would accord a minister plenipotentiary; for the message it bears may have no more connection with its apparent origin than the minister's knee breeches have to do with the amount of gray matter he carries under his hat. That is why coughs are one of the most fascinating studies in medical practice.

CHAPTER V

That Tired Feeling

DOCTORS deny that "that tired feeling" exists. They contend that there is no more reason for spring fever than there is for winter, or summer, or fall fever. The ponderous repositories of medical wisdom are silent on the subject, implying by this silence that about nothing there is nothing to say. But the fellow that has it knows better.

For in the spring, when a young man's fancy lightly turns to thoughts of love and baseball, the general fancy turns more or less to thoughts of "sarsperella", sulphur and molasses, and other "blood purifiers." Perhaps this fancy is much more chronic and widespread than a mere disease; for it is

also a state of mind. It is a sort of Christian Science turned inside out and upside down. Instead of affirming that there is not, nor can there be, any such thing as pain and sickness, the victim of "that tired feeling" enthusiastically insists that there can be nothing else — in the spring, at any rate.

This obsession had its roots in the insistent demand of the human economy for green vegetables, fruits, and natural acids after a long period of subsistence upon pickled, jerked, smoked, and otherwise maltreated meat, plus a winter's course of mealy potatoes, yielding a mess of starch, sugar, and acid fermentation.

Possibly none, except those who are old enough to have had bitter experience with this rigorous diet, can appreciate the degree of craving that can be generated for mere food, — any food, so long as it is not the kind they have been having. After weary months

of a regimen varied only by an occasional pickle or plate of sauerkraut, the average man or woman of the good old days — which are good only because they are dead — would cheerfully have committed highway robbery for a dish of fresh greens.

In those golden days, when the stomach turned over with a despairing moan every time it heard the dinner bell, when it shuddered at the thought of tackling a big piece of fat pork or corned beef for the hundredth time running, it is no wonder that it greeted with delight anything that promised to be different. And what less resembled food than bitters, laxatives, and "blood purifiers"? What more sensible than to discontinue, for a period, the heavy, cloying meals, and give the system a rest and scouring out? Indeed, to cheer up a sulking liver, and make it feel that it really was of some consequence in the internal economy was fulfilling man's highest duty to himself.

Thus, as our forebears were never homeopathically inclined, it became the fashion to have a regular knock-down-and-drag-out spring house-cleaning. The pharmacopœia was fine-combed for remedies that meant well, some of which, in fact, were not bad if used moderately and "mixed with a little brains." But, on the principle that if a little was good a good deal must be better, it became the fashion to take medicine by the tin dipperful. No namby-pamby weaklings these, our rugged ancestors! Experience finally taught them — or their heirs and assigns — to avoid the tremendous doses of calomel or "blue mass" that loosened every tooth in their heads, and the drastic potions of jalap, "seeny" tea, and other too active medicaments that now, happily, have gone into the discard. Also poisonous peach-leaf tea, with its heavy prussic acid content, strychnine, caffeine, and the practice of taking handfuls of quinine were abandoned,

and the victims of spring fever finally settled upon plain "boneset tea" and other "yarbs."

The only disastrous consequence of overdosing with these potent "cures" was that of getting waterlogged and foundering in the freshet. And if the stalwart yeoman swathed himself in half-inch woolens, went to bed thus accoutered, and piled on heavy masses of blankets or a thirty-pound feather bed, even this unpleasant experience was avoided, because the perspiratory glands carried off the excess wetness before it could produce a permanent dilation of the stomach.

If anything had the temerity to attempt to clog the body glands and the organs of elimination, it was literally swept off its feet by this tremendous spring flood. It may be here admitted, in further justification of the ancient custom, that any course of action that contemplates drowning disease in hot drinks, baths, and sweats, which will keep its owner in bed until the treatment has

done its worst, is bound to score a large percentage of cures.

After this active elimination followed the "spring tonics", which buttressed up the good work. These were composed of harmless sassafras root, cherry bark, sarsaparilla, slippery elm, or the mouth-filling and drastic sulphur and molasses, which, if it did no good, certainly could not be charged with having done much harm, unless the harm consisted in taking something into the system that was unnecessary and therefore irritating.

The early spring greens, such as dandelion, pokeweed, and hops, were also in great favor about this time, or a little later — and small wonder!

So we have seen that there really existed a necessity for "spring dosing." It was a purely natural condition, dependent upon unnatural conditions of living. I find peculiar pleasure in saying a good word for the treatment practised by these old fellows, who

acted according to their lights; for where there is much smoke there is always some fire. In our modern sophistication we are perhaps too prone to forget this axiom, and to hoot derisively at old methods just because they are old.

Also we fail to get the proper perspective. We smile indulgently at the quaint notion that there should be a physical, as well as a general, house-cleaning every spring; but we fail to remember that the reason that impelled this feverish activity in a former generation now no longer exists; or, perhaps more accurately, would no longer exist if everybody took proper food, exercise, and fresh air twelve months in the year.

In this wonderful era of canned fruits, cold storage, refrigerator cars, and reasonably priced hothouse vegetables, there is not the same excuse for spring fever as in our fathers' time. Still, "that tired feeling" does exist, and, like the babbling brook, will probably

run on forever, unless humanity ultimately learns to obey certain immutable physiological laws.

This brings us to the point: What do we mean by "that tired feeling", and how may we avoid the thing without imperiling our lives by resorting to the methods of our heroic forefathers?

The old conception of the cause of spring fever was that during the winter the system accumulated a mass of waste material, popularly designated as bile, jaundice (better known as "janders", or "spleen"). The logical sequel to this belief was that something was necessary in order to rid the system of this accumulation, the quicker the better.

Now, we might argue until we were blue in the face that, with the liberal diet which modern methods of preserving fruits and vegetables have brought about, there is no further necessity for spring lassitude. Yet any number of people regularly have it;

and it isn't all in their imaginations, either. We might reason with them to the effect that, considering the dietetic opportunities of the twentieth century, they couldn't possibly have spring fever, after the manner of the lawyer who told his imprisoned client that they couldn't put him into jail for this, against which the client protested emphatically and profanely that, notwithstanding the law and the technical theories, he already *was* in jail. The spring feverites would reply in like manner — omitting, of course, the profane expletives — that, while they have no philosophical cause for "that tired feeling", yet they have it just the same.

There are well-defined causes for this very general condition. I conceive at least four, which we will consider in the order of their relative importance.

First, overacid stomach. By "overacid" we mean the acid resulting from fermentation of starches and sugars. Rarely or never

is there an excess of hydrochloric, the normal stomach acid. In fact, there is usually a deficiency of this normal acid in the condition known as hyperacidity. And, paradoxical as it may appear, a course of the normal gastric acid will sometimes prevent the formation of the other kind.

In hyperacidity there is a feeling of heaviness in the abdomen, with flatulence, belching of gas, and eructations of a highly acrid liquid. "Heartburn" is temporarily relieved when the irritating acid content of the stomach is diluted by adding food to it. This quiets it for a time, after which it blazes forth as though fresh fuel had been thrown on the fire as in truth it has been. Milk of magnesia or other alkalies may give relief; but unless the condition is of recent development this relief is merely palliative. The fault is deeper.

The second cause for "that tired feeling" follows hard upon the first. In fact, it is a

result or a cause, depending upon which point of the circumference of the vicious circle we happen to be examining. This thing is toxemia. Its symptoms are so plain that those who run may read them without eye-strain.

The victim is listless, without ambition. He doesn't "care a rap whether school keeps or not." If he inclines in either direction, he would perhaps rather it didn't. He has difficulty in concentrating his mind; his memory is annoyingly defective. He may remember all the details of a fishing trip taken in 1908; but he can't, for the life of him, remember what he had for luncheon or where he put his pipe. He is drowsy, and very likely to drop asleep without provocation; yet his sleep is restless and unrefreshing. The more he gets, the more he seems to need, and yet it is too much of an effort to stay awake, or it doesn't seem worth while. In short, he is completely

"dragged out" and miserable. He is in that condition characterized as "not right", lacking animation, virility, and "punch." We shall see presently how closely his toxemia is bound up with his hyperacidity.

The next most frequent cause for "that tired feeling" is neurasthenia. This has as many aspects as old Proteus himself; but in this chapter we will consider only that phase of it which is related to our subject. Neurasthenia can be distinguished by the various disagreeable symptoms it produces. Among these are headache and backache, with a "deadening" of all the organs concerned in digestion, metabolism, and elimination; a profound nervous and muscular weakness, melancholy and general depression, mental irritability, and sleeplessness. In fact, when the nerves "let down" there is little or nothing that may not happen to a person.

The fourth common cause for spring fever is oxygen starvation. There is hardly any-

thing that can be drunk out of a bottle that will produce headache, lassitude, or the general debility signs of spring fever any sooner than oxygen hunger, notwithstanding the fact that a human being can accustom himself to almost any amount of abuse.

One almost universal method of indulging in this abuse is to exclude good air and rebreathe the bad air in a room, — air from which most of the oxygen has been exhausted, and replaced with carbon dioxide. Now, a human being is, or should be, an outdoor animal. He usually is, in summer; for doors and windows are then constantly open; but in the winter humanity shuts itself up in hermetically sealed boxes as nearly as possible. From houses, offices, churches, theaters, street cars, trains, from every place where oxygen should be available, it is excluded, chiefly for economic reasons.

It costs money to heat a house or a street car. It is less expensive to bottle up last

summer's air, and breathe it over and over again; that is, it seems less expensive. In reality it is not; for the cost falls upon the ultimate consumer in this as in other cases where the overhead charges are "passed along." The transportation company saves money by herding passengers into inadequate boxes. These are warmed somewhat as the "breath of lowing kine" warmed the stable in Burns's beautiful poem. But the loss in energy on the part of passengers, consequent upon having to rebreathe one another's carbonic gas exhalation, is decided.

The householder also thinks he is saving money, to which the coal man or the gas company are legitimately entitled, by fastening weather strips on all doors and windows, and by educating the family to shout in horrified unison, "Shut that door!" In fact, slamming the door in triumph of dexterity is our most proficient winter accomplishment. Yet, if a tithe of this energy

were employed in holding the door open, so that the family might have the benefit of breathing a little more oxygen and a little less carbonic acid gas, the chances are that they would be energized into doing a quantity and quality of work that would insure them an increased income, — an income more than adequate to buy many thousand units of whatever it is they burn as fuel. And in the meantime they would be oxidizing their food, and thereby preventing the formation of underoxidized "end products", — unconsumed clinkers, which remain in the system to clog, poison, and depress.

So the cure of these four causes of spring fever is ridiculously simple. It consists merely in a radical regulation of the diet, based upon the physical needs of the body, liberal flushing of the system with plain cool water, — the plainer the better, — and a plentiful increase in the intake of oxygen.

It should be remembered that the system

requires just about so much nutritive material — or perhaps a little bit more, for good measure. Roughly, the average requirement for all races of mankind is the amount that will furnish from two thousand to three thousand calories of heat every twenty-four hours. A calory is the amount required to raise the temperature of one pint of water four degrees Fahrenheit. If a man rises from his chair and walks about eight feet, then returns, he uses up one of these units. Yet the body even while resting, or quiet in sleep, is constantly using up energy. It is also giving off heat about as rapidly as a sixteen-candlepower electric lamp.

There is only one way to supply this heat and energy, and that is to oxidize the food. As only a certain amount of oxygen can be taken into the system by the ordinary process of breathing, it can readily be seen that something is going to be slighted: first, if more food is taken than can be perfectly

transformed and oxidized; next, if the wrong kinds of food are taken; thirdly, if an undue amount of nervous energy is used for which there is no adequate return; and fourthly, if an insufficient amount of oxygen is provided for oxidation purposes.

Therefore, to have a reverent care for our health (as Falstaff advises), and dodge the bogy of spring fever, it will be necessary to observe these four principles more or less strictly. We must be certain that we have selected actual food for our systems, and not compounds that will develop poisons to paralyze us.

Bear in mind that there can be only sufficient oxygen taken into the system to oxidize a certain amount of food; further, that starches, by reason of their more rapid conversion, get this oxygen attention first. (This also applies to sugars — particularly cane sugar.) Consequently, when the meats are transformed into albuminoids, and are

ready for oxidation, there is no oxygen left for them. They only putrefy.

This is strikingly illustrated in the case of meat, potato, and starchy dessert meals. The potato contains a high percentage of starch (about 14.7), and a very low percentage of proteid, or muscle-building material (about 1.8). It would be necessary to eat about a peck of potatoes at every meal in order to get sufficient nutritive material for body repair. (But they digest rapidly, and incidentally use up all the available oxygen in the system.) Consequently, when the meat part of the meal is ready for oxidation, there is no oxygen left for it. So it breaks down and forms toxic materials, which are absorbed into the blood stream, there to irritate and poison the nerve and tissue cells. This produces headaches, lassitude, and all the general symptoms of "that tired feeling."

The commonly accepted diagnosis and prescription in such cases used to run after

this style: "Your trouble is caused by eating too much meat. Restrict the meat and live on vegetables." This caused the patient to grow weaker and yet more weak, for the simple reason that there wasn't sufficient nourishment in the "no meat" diet to supply the requisite number of calories of heat and force, and at the same time provide the pabulum for repairing wasted muscle and nerve cells.

Nowadays the scientific dietist finds out, from an examination of the excretions, just how much material is being utilized, and how much is undergoing decomposition. Then, instead of "cutting out" the things that seem to be causing the trouble, he eliminates the things, or a goodly portion of them, that are digesting without difficulty. And in so doing he is giving the system the food that is necessary to keep up its strength, and is also permitting it to have a fair chance at the oxygen content. In other words, he has now discovered that the best way to

prevent meat intolerance is to interdict potatoes and starches.

This is the secret of the whole complex matter: To give but little more food than can be oxidized, to give that particular class of food which is essential to the building up of the body, and to withhold, or limit, the other varieties.

Further to prevent putrefaction of the meat foods, the internist gives fruit only by itself: never in combination with a meal. For when a mass of material, supersaturated with a fruit acid, goes into a defenseless stomach, the fruit acid prevents the proper secretion of the natural stomach acid, and without the natural hydrocholoric acid, albumin cannot be converted into its next digestive form. Another result is acid fermentation in whatever starches and sugars may be present.

Therefore, eat liberally of fruit, especially if you are spring-feverish; but eat it when the stomach has nothing else to worry about.

The food should be thoroughly prepared for digestion by being carefully chewed; not Fletcherized, but masticated. This will show proper respect for those greatly neglected members, the teeth, and also to what passes between them.

Remember also that fatigue is a danger signal; for it indicates that the lungs are not throwing off the carbon dioxide so rapidly as it is forming and accumulating. The cure for this carbon dioxide poisoning is to rest — rest and breathe. There is no other antidote or remedy for fatigue. Only through the lungs can the fatigue poison be worked off. Breathe deeply; but be certain to breathe pure air containing the requisite oxygen.

If these simple rules are followed, the goblins of spring fever and "janders" will never "git" you. You will be able to bid defiance to almost anything except accident, death, and the tax gatherer.

CHAPTER VI

Why does a Head Ache?

FOR ages humanity has raved about the "sympathetic" heart. Medals and iron crosses galore have been pinned upon it for special softness. It is the minaretted peak of applied tenderness.

All this is perfectly pure piffle. It is not the heart that is soft, sympathetic, and tender, that throbs with solicitude for the well-being of its owner, that writhes in anguish when anything goes wrong with the republic of cells he carries around between his hat and his shoes.

It's his head, his soft, sympathetic head. For this useful and occasionally ornamental member is capable of more sacrifices and vi-

carious atonements than tongue hath power to tell, or pen to write down. It aches for more reasons than any dozen ill-disposed organs of the body can conjure up. If the liver, the malaria-infected blood, the stomach, the ears or eyes, or, in fact, any member in the partnership of organs we call the body, doesn't like the way it is being treated, all it has to do is to tell the head about it. Be it ever so humble, the abused one commands the head to ache, and the head cheerfully and promptly acquiesces.

Perhaps the most common form, particularly as it afflicts the more susceptible sex, is nerve irritation. Loss of sleep, a spoiled skirt, a too-talkative visitor, a dull play or book, grief or a fit of crying, a corn stepped on by some heavy-footed clod, anything, in fact, that worries or hurts the nervous system, can and does make the head ache.

The next most common cause of headache is poisoning, arising from the absorption into

the circulation of toxic materials generated in the intestines. These retained products of putrefactive fermentation are among the most dangerous poisons known to man, being twin brothers to the deadly curare, with which the Orinoco Indians tip their murderous arrows. If isolated, and injected directly into the blood, these "putrefactive alkaloids", as they are called, would kill like cobra venom. Fortunately, in passing into the blood by absorption, their virulence is partly neutralized and overcome. But they are still poisonous enough. Hence, the relief of constipation, and a mild course of cathartics are perhaps the most useful and indispensable of all headache cures.

Another condition of self-poisoning develops from loading the system with fatigue poisons, — toxic material which accumulates in the blood faster than the oxygen of the red cells can burn it up. This causes the shopper's and shop-girl's headache, and that

dull throb resulting from muscle-tire. The head is imperatively demanding rest and quiet, and a chance to catch up with and destroy the body's under-oxidized cell débris.

The "stuffy room" and "sermon" headaches are fatigue poison pains. In these conditions we not only are not getting sufficient oxygen to overcome the poisons we ourselves are constantly generating, but we are breathing, in the form of carbon dioxide, poisons emanating from several hundred other humans.

Good old-fashioned biliousness is a fine and adequate cause for headache, — headache actually mulish in its obstinacy. A judicious amount of starvation, together with copious flushing of the system with lemon water, or some mild alkaline liver stimulant, usually works wonders for these.

"Sour stomach" also produces its quota of headaches. Abstinence from fried foods, pastries, excess of starches and sugars, and

an occasional dose or two of milk of magnesia or some other efficient alkali will correct this.

Overeating is a sore provoker of cranial pains. The toxic material generated by fermentation of too much food, or too much of the wrong kind of food, circulating through the delicate nerve fibers of the face and head, manifests itself as pain. This is the variety of headache that most frequently punishes high livers and low thinkers.

Eye-strain is probably the next most frequent cause of head pains. It is really surprising how strongly the eyes object to such trifles as being exposed to the glare of the sand, sea, or bright light, or to too long-continued focusing on a flickering moving-picture screen, or to being employed for reading, working, or embroidery purposes, hours on end, or even to the mere fact of the ocular muscles being improperly balanced.

One would think that these muscles, by a process of evolutionary development, would have become accustomed to all such manifold abuses by this time. But emphatically such is not the case. And so, every once in a while, such men as Doctor Gould, of Philadelphia, or Doctor Baldwin, of Kalamazoo, Michigan, instantly and permanently relieve some bad case of headache, perhaps of years' standing, by correcting the imbalance of the ocular muscles, either by operation, or by "fogging" the vision with prisms.

Many suffer from headache as a result of intently watching a theatrical performance. This is because the attempt to keep the stage in constant focus exhausts the nerve centers. Seated in darkness, and staring at an intensely lighted stage, produces in these patients headaches that sometimes last for days. Those subject to this form of trouble should never sit in the "bald-headed row",

or where it is necessary to raise the eyes to watch the stage.

In chronic headache, where no specific cause can be elicited, especially in men or women who live a sedentary life, and partake freely of lobster a-la-Newburg and a high proteid diet, careful urinalysis and blood pressure tests should be made at least once a year, to determine whether or not the kidneys are acting normally. Many hundreds of lives might be annually saved by thus determining the presence of arteriosclerosis and kidney disease while in their early and curable stages.

Caffeine stimulation, in the form of excessive coffee drinking, is another prevalent cause for headache. Coffee is a most useful, and up to a certain point, a most beneficial tonic and stimulant. But too much is more than plenty, especially if taken at night in sufficient quantities to produce insomnia, or disturbing, restless dreams.

Abuse of tobacco is another cause for aching head. The banquet or the "smoker" may have been a grand success. And the susceptible banqueter may have been most abstemious; he may even have limited himself to his usual restricted quota of cigars. But notwithstanding this adherence to rule, he absorbed too much carbon dioxide and the noxious gases from the other fellow's smoke. For hours he gridironed himself by inhaling these poisonous products. And so the next morning his head tries its best — in its artless, plaintive way — to tell him about the need of his body for more oxygen in order to burn up the poisons accumulated the night before.

Decayed teeth are not infrequent causes of neuralgic headaches, as they are of many much more serious pathological conditions. In this era of competent dentistry and free dental clinics there is no longer any logical excuse for poisoning oneself by decay from the teeth.

Sometimes a "slipped" or "rotated" cervical vertebra is the cause of dull and protracted head pain. A skilful osteopath, by a judicious stretching of the vertebral muscles, together with manipulation of the bones of the spine, can usually reduce this cause to a condition of non-existence in a few brief minutes.

Catarrh and long-continued irritations of the nasal cavities, from twisted septums, enlarged turbinate bones, or thickened mucous membranes, are prolific sources of headaches. The services of a nose and throat specialist are necessary here, although if the cause be merely congestion of the nasal membranes, strong pressure on the center of the tongue morning and evening with a tongue depressor, after the FitzGerald method, has often given complete relief.

Doctor FitzGerald's discovery, by the way, is also valuable in the treatment of nervous and neuralgic headaches. Firm pressure

with the thumb on the roof of the mouth (the hard palate), directly under the seat of pain, continued for from two to four minutes, has in hundreds of instances been most effectual.

Headache powders or tablets, most of which contain acetanalid, a poisonous heart depressant, should never be used, except under the advice of a physician. They merely mask the true cause of the trouble, and tend to develop a "dope" habit. Also they produce a depraved state of the blood, and may even cause death.

It is to be hoped that sometime in the near future the Government, as a measure in life and health conservation, will force upon all manufacturers of headache powders the necessity of labeling their preparations with this inspiring legend: "Contains acetanalid, a poisonous heart depressant."

So headache invariably means something. In fact, if we would take the trouble to find

out what this something is, and remove it, headache would be the most useful and life-saving pain in the medical dictionary. But however else headache may be treated, it should never be treated with contempt. Headaches that cannot be relieved by cold towels, hot water bottles, smelling salts, rest, elimination, regulation of the diet, or some of the simpler, nonharmless methods, invariably should be referred to a doctor.

The real and tremendously useful function of headache is to serve as a combination fire-alarm and police whistle for the body's protection. Any system of living which automatically silences this alarm must, of necessity, be a health and life insurance of the first water. From which we infer that if we had as much sense as a headache we would never have one.

CHAPTER VII

The Demon of Insomnia

THE most dangerous things about insomina are the remedies used to club it into insensibility. Nine times out of ten insomnia is likely to be something that should not be clubbed. If we could find out what this something else is, and cure it, the insomnia would take care of itself.

To bludgeon an undernourished set of nerves, an irritated digestive or circulatory apparatus, or an oxygen-starved system with "sleeping powders" or "knockout drops" is not only foolish, but actually criminal.

Because an individual has, before retiring, filled his mind with an exciting romance or his stomach with an indigestible meal, or

has stimulated his heart and nervous system with too much tea, coffee, tobacco, or alcohol, is no reason he should further poison himself with hypnotics or narcotics. For, be it remembered, excessive drinking, smoking, eating, reading, or playing increases blood tension in the arteries, and makes the heart beat more rapidly. And anything that makes the heart beat more rapidly around bedtime is good for insomnia, but bad for its victim.

Some reckless optimists there are who contend that insomnia really has no existence save as a figment of an overactive imagination. They cheerfully dispose of it by asserting that an insomniac is merely a pessimist.

But it is now generally conceded that a pessimist is one who has to live with and listen to an optimist. And the optimist who insists that you were asleep, only you didn't know it, or that you awoke to hear the clock toll off the lingering hours, and then

like Omar Khayyam's wise men, "to sleep returned," or that even if you didn't sleep for a few weeks or a few months (it wouldn't matter anyhow), is partly responsible for your pessimism — if you are an insomniac.

Sleeplessness is a most real and tangible demon to the unfortunate upon whose shoulders it perches. In fact, there is only one thing that is much worse than insomnia, and that is worrying about it. Frequently the worst sufferers from insomnia are the family and friends of the insomniac, who have to listen to the lugubrious tales of his sleeplessness. Staying awake in a comfortable bed for a few hours at a time o' nights isn't nearly so dangerous as talking and thinking about it all the following day and filling oneself with the auto-suggestion that the performance is going to be repeated. If one could take insomnia calmly, even thankfully, as affording a splendid opportunity for lying awake and thinking noble thoughts, the

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insomniac would promptly get disgusted, pack up, and leave for more promising fields. But we are not so constituted. If we have done one of a thousand things we should not have done, or have left undone one of an equal number of things we should have done, and if we lie awake for a few hours, or even an entire night, as a consequence, we immediately start a free-hand worrying spell for fear we shall repeat the procedure the next night. And so greatly do we dread this that we usually do it.

This is the beginning of what might be called "psychic insomnia", — a condition that has no particular reason for existence beyond its initial mental impulse, aided and abetted by an overfertile imagination. Yet many of our most persistent insomniacs got their start in just this way.

And when insomnia gets firmly established what it can't accomplish in the way of running down a nervous system, paralyzing the

mental faculties, "taking the tuck" out of a fellow, or spoiling a woman's good looks, isn't worth accomplishing.

The real, genuine, dyed-in-the-wool insomnia has its origin in a variety of causes. The principal of these is worry, — business, domestic, social, or just plain worry. The cure is ridiculously simple. Merely stop worrying. Most of the philosophers, from Marcus Aurelius to Pastor Wagner, — none of whom probably ever had much to worry about, — have given explicit directions as to methods.

Given sufficient time, the chances are that tired Nature will ultimately reassert itself, drive Carking Care from her perch, and help the patient to make up for lost sleep. For finally — and this is an axiom in psychology — the system fails to respond to a stimulus that does not increase in intensity, and the causes of grief and worry usually decrease in power as time elapses.

THE DEMON OF INSOMNIA

To have an occasional wakeful night is an evidence of intelligence. Hardly a normal man or woman but will sometimes have experiences that cause a period of wakefulness. Only human clods sleep undisturbed through every sort of storm and stress. Until the fear of sleeplessness becomes a full-grown phobia, no anxiety need be felt. Insomniphobia (to coin a term), the fear of insomnia, or mere overanxiety to get to sleep, is more to be dreaded than insomnia.

The great majority of mankind suffer rarely from sleeplessness. They have too many other things to worry about. In fact, this aristocratic disease is usually a possession of those who can best afford it. The man or woman who puts in the larger part of his or her waking hours in healthful activity is too tired, when sleeptime rolls round, to lie awake very long. The Drowsy God usually arrives on schedule for them.

Many insomniacs of a vegetative turn of mind and body lie awake at night because they haven't been sufficiently awake by day. This is also true of those of sedentary habits of life, whose brains only are awake, while their bodies hibernate in an office chair. Something that will keep these awake when they should be awake would be more likely to make them sleep when they should be asleep than almost any other form of treatment.

Active exercise — any exercise in the alphabet, from Alp climbing to the tango — will give excellent results in most cases of insomnia. None sleep quite so soundly as those who have earned it by the sweat of their brows.

A brisk but not too fatiguing walk before retiring will sometimes work wonders for either a human sloth or a brain abuser. A good measure of what is appropriate in the way of exercise would be to walk in one di-

rection until one begins to feel tired. Then turn, and walk back the same distance, on the principle that a little too much walking produces just sufficient fatigue for sleeping.

In connection with the subject of exercise, it is curious to note that one may have too much of a good thing. Paradoxical as it may seem, many become sufficiently tired to stay awake, developing insomnia for this reason. The fatigue poisons resulting from the breaking down of cell tissue accumulate in the blood stream faster than they can be oxidized or eliminated, thereby poisoning nerves and brain, and causing irritability and wakefulness.

A warm bath before retiring, a wet pack, a cold cloth at the head or the back, or other measures tending to promote elimination and equalize the circulation, will usually give satisfactory results. For those of sedentary habits who are troubled with cold feet, a hot footbath, or better still a cold

footbath, with vigorous friction following it, and the wearing of a warm pair of bed stockings, will often induce sleep.

Fresh air is also valuable in these cases; for, lacking sufficient oxygen, the fatigue poisons are not oxidized in the lungs and exhaled as carbon dioxide. This maintains nerve irritation and restlessness, which are reflected in insomnia.

Or the sleep may be light, the victim of bad air and fatigue poison rising in the morning more tired than when he went to bed. To avoid this open the bedroom windows early in the morning, then forget to close them at night. Strict observance of this omission will cure many of these can't-sleepers.

Perhaps the most common of all causes of insomnia is nervous exhaustion from nerve starvation (neurasthenia), which especially afflicts those who burn the candle of health at both ends. That neurasthenia is an

actual disease, insomnia being merely one of its many distressing symptoms, thousands will testify. However, it is encouraging to know that neurasthenia has an actual physical (or rather pathological) basis somewhere, if we can but discover it.

It may be overwork, especially with exhausting studies, or mental labors practised at night, worry, some digestive or assimilative defect, improper metabolism, imperfect elimination, or any of a hundred other things that interfere with the perfect functioning of the body.

To diagnose the particular pinprick that is responsible for the sleeplessness of neurasthenia frequently demands much time and study on the part of the physician, and much patience on the part of the sufferer. But it's the only way permanently to cure insomnia arising from this cause.

Sometimes an unusual noise keeps one awake. If this persists for a few successive

nights it fastens a habit of intense listening upon the would-be sleeper, which effectually prevents his passage across to Slumber Land. Or he may merely be overexcited, or suffering from some mental strain, and the usual gentle noises of the elevated trains or the ambulance bells become an actual racket. Temporarily placing a plug of vaselined cotton in each ear will cut off that source of irritation.

An earthquake is not more disturbing to a normal mortal than is an ordinary fly, buzzing and bumping against the window pane, to the overexcited nerves of the insomniac. He intensifies the evil by exaggerating the sounds he hears, and by concentrating his attention upon them. Thus will he lie awake half the night listening for a noise he heard the night before. And he is almost as much disturbed by the sounds he doesn't hear as by those he does.

Put not your faith in a sojourn in the

country for the cure of noise insomnia, so long as you carry the particular thing with you that causes susceptibility to sounds. To city-bred ears and nerves the country is the noisiest place in the world.

The maddening shrill of the crickets and treetoads, the insistent assertion that Katy did or didn't, the full-throated "gurrup" of frogs, the untimely clarion of leather-lunged roosters, and the bawling plaint of a bereft bossy for the bull-calf apple of her eye, conspire to drive a nervous man or woman, unused to these ear-splitting sounds, almost into hysterics.

Still further to demonstrate that "there is no good nor bad but thinking makes it so", we must remember that a certain amount of noise — about what the individual is accustomed to in normal conditions — is seemingly essential to deep slumber. Indeed, it is highly probable that the inability of many of us to sleep soundly in strange surroundings is

due to the fact that we miss the familiar noises, and subconsciously resent the intrusion of unfamiliar ones.

In fact, if there isn't a definite agglomeration of usual sounds upon which the insomniac can focus occasional attention, he invents new ones of his own. And if he has an active imagination in good working order, he can conjure up sufficient incident and accident, and moving tale by field or flood, to keep him awake twenty-five hours out of twenty-four. So it isn't wise to anchor in the middle of a calm lake, or to pitch camp in a desert, unless the thing that is causing the insomnia is left behind.

For those forms of insomnia due to heart disease, chronic congestion or organic disease of the brain, insanity or melancholia, kidney disease, cancer, eye strain, gout, or rheumatism, it is obvious that skilled medical attention is required. This is also true of any condition that depends upon pain, cough,

shortness of breath, excessive sweating, or delirium for keeping its victim awake.

In the sleeplessness of typhoid or other fevers continued nervous or muscular activity completely exhausts the vital forces. It may be absolutely necessary to secure sleep in order to save life. All means that accomplish this result are good means.

One of the most effective methods of inducing sleep, one that can be put into practical application by almost any intelligent man or woman, is the employment of therapeutic suggestion. It requires no special powers, and but little practice, to become proficient in treating others by this method. The chief requisite is confidence in yourself, supplemented, of course, by a willingness on the part of the patient to try as far as possible to make his mind a blank, — to busy the brain over nothing.

Take a position by the side of the comfortably relaxed passenger for Dreamland,

back just far enough to cause his eyes a slight strain in the attempt to focus them upon yours. Hold them thus steadily, and repeat in a drowsy, monotonous tone, "You are going to sleep — sound asleep! Your eyelids are getting heavy! You are going to let them close down, and go sound to sleep — sleep — sleep — sound asleep!" Vary this formula from time to time to concentrate attention fully upon the matter in hand.

In the course of five or ten minutes the subject's eyelids will get heavy, and gradually flutter down. He will soon be sound asleep.

Patience and absolute seriousness of purpose are necessary for the success of this experiment. When sleep has been induced it is well to suggest, as though there could be no particle of doubt that the instructions will be literally carried out, "You will sleep soundly all through the night! You will

awake rested and refreshed in the morning! And you will be able to go sound asleep tomorrow night, and the next night, and every night hereafter, without the slightest conscious effort!"

There need be no fear that the sleeper will not awaken at the proper time; for this induced sleep passes imperceptibly into natural sleep in a very few minutes. And from the induced sleep all that is necessary, in order to awaken, is to say in a little firmer and louder tone of voice, "When I count five you will awake, rested and refreshed." Then begin counting, "One — two — three — four —" pause a moment, to give the subject a better opportunity to focus upon the signal — then sharply, "five. Wake up!"

This method is particularly effective with restless children.

Those of us who have counted innumerable sheep, jumping one by one over the fence of our imagination, will appreciate that the

point to be striven for in thus securing sleep is monotony and repetition. And however funny it may seem to those red-blooded brigands who can woo great Nature's second course and chief nourisher in Life's Feast at will, it is no joke to the wideawake mathematician, counting faithfully, and heartily, those ghostly sheep that skip so blithely over the stile.

Now here is a method that doesn't permit so much latitude for galloping thoughts: It is a form of suggestion that adults can practise upon themselves. The idea is to establish monotony by repeating a progression of numbers, aiding mental concentration by opening and shutting the eyelids at each count. The physical act of opening and closing the lids requires just sufficient effort to preclude entertaining extraneous ideas, which mere counting would not accomplish.

Thus, lying quietly relaxed, count "One", at the same time opening and closing the

eyelids. Wait a few moments, then count "Two", repeating as before. Presently the lids will become heavier, and refuse to open at the count. The mind, having been thoroughly occupied in counting and "willing" impulses, hasn't harbored a pack of racing thoughts. So before very long Sleep cuddles into its rightful place. This method will well repay the effort.

It might also be wise to observe the influence of the " magnetic meridian " upon sleeplessness. Have the bed run north and south, and sleep always with the head to the north, or the south, as conviction inclines. Or, if you sleep more soundly the other way, have the bed placed east and west, and sleep invariably with the head to the east, or the feet to the east, whichever gives the best results.

Sometimes gentle exercise in bed — right where the fatigue induced will do the most good — is very effective. Lie prone, and

stretch the body to its utmost by attempting to reach the head and foot boards at the same time. Then raise your head a few inches, and hold it in this position while breathing slowly and deeply. You will soon be very glad to drop it back upon the pillow. Now repeat this operation with the right foot. When that droops and languishes from fatigue, do the same with the left. Then begin with the head, and do it all over again.

In a few minutes you will have tired and relaxed most of the muscles of the body, and in a surprising number of instances, if the procedure be faithfully followed out, a healthy, natural sleep will follow.

Reading oneself to sleep is a form of autohypnosis that is common and commendable. The book or magazine should be just sufficiently interesting to divert the mind, without arousing a train of thought intense enough to be in itself a cause of wakefulness.

If one could afford to engage a violin soloist to play soft improvisations upon muted strings, the results should be perfectly ideal. However, in well-equipped sanatoriums it is now recognized that music is valuable in the treatment of insomnia, and its use is rapidly extending.

Osteopathy, massage, or even simple rubbing along the spine, friction being applied with the bare hand, have given good results in sleeplessness. In using friction there should be only moderate pressure at first, becoming still lighter, as nervousness and excitation are relieved, and the patient's slower and more even breathing indicates the relaxation of approaching sleep.

The water cure (hydrotherapy) has many enthusiastic exponents. It is rational, harmless, and definitely helpful in a large percentage of cases. The warm bath, the hot or cold footbath, the wearing of the moist abdominal bandage (called by the Germans

Neptune's girdle), and the wet sheet are all excellent.

Sarason of Berlin has recently added to our resources in treating insomnia by inventing an external "sleeping powder", which works on the principle of the Nauheim bath, except that the water is charged with oxygen instead of carbon dioxide gas. The oxygen is generated in the water by sprinkling sodium perborate and manganese borate in a full warm bath. A thrice-weekly twenty-minute immersion in this oxygen bath is frequently more efficacious and certainly cheaper than a trip to Germany.

In most cases of insomnia, unless due to anemia, the proteids should be reduced to a minimum. Meat proteids especially are entirely too stimulating. The diet should be light and easily digested. The principal meal should be eaten at noon; although one should not retire feeling hungry. In fact,

a glass of hot milk or a very light lunch just before going to bed is often a good soporific, causing a flow of blood from the brain to the great abdominal blood vessels.

Anything, except drugs, that will produce sleep is useful and admirable. The salutary effects of a drugless sleep are felt all the next day. The usual "doped" sensation, which follows the use of hypnotics — even the most harmless, as bromides and veronal — is entirely lacking. If a comprehensive inspection of your habits, with the correction of the bad ones, doesn't cure your insomnia, you had better lose no time in calling in some one qualified to discover your physical imperfections, and apply the proper cure directly to them. It will be a thousand times better than trying to club your insomnia into insensibility with drugs. "Sleep at any price" is entirely too expensive.

CHAPTER VIII

The Screaming Nerve

ONE peculiar evidence of what Emerson blithely termed "compensation" is that the things that hurt us the worst are rarely fatal. Often we wish they were, but the fact remains. One may be bludgeoned by the toxins of a whole fistful of bugs, and perhaps merely be uncomfortably warm, or delirious, or even mercifully unconscious; while an inflamed, red-headed nerve no thicker than a string may cause untold tears of agony.

There is grim satisfaction in having something that is going to wear itself — or you — out in a definite, stated time; which enters, with whole-hearted and inspired abandon,

into a logical, consistent effort, if it isn't beaten off the premises, to provide employment for the undertaker. But with a nagging, strength-shattering, never-to-be-sufficiently-execrated pain, Patience abdicates her monument, and Giant Despair usurps the vacant place.

Such a condition is neuritis, or inflammation of the nerves, — a mean, truculent disorder, the most obvious and least appreciated characteristic of which is torture along the course of the nerve and its ramifications. This pain is in a class by itself: it differs radically from almost anything else that inflicts itself upon us. It resembles just about what we might expect if an inquisitor were boring a giant, redhot needle right along a nerve, and putting in a few extra jabs when he came to the surface endings.

This torture is worse at night, and increases if one foolishly attempts to move the part affected. The nerve is extremely tender

on pressure, and the surfaces over its course are frequently red, or sometimes dropsical. One characteristic peculiar to it, as distinguished from most other diseases, is that the function of the muscles supplied by the screaming nerve is impaired, and they become flabby or flaccid, or even shriveled or atrophied.

At its onset the muscles frequently dance a veritable Devil's Hornpipe, twitching and jerking in uncontrollable spasms. When they are not engaged in this revel, they are busy trying to communicate the information that there are about two thousand imaginary ants running up and over and around the skin under which they reside. In addition to these unpleasant symptoms there are also, in aggravated cases, pricking sensations, as of pins and needles being thrust into the flesh, together with markedly increased susceptibility to feeling in the calves of the legs, which sometimes makes even the friction of the clothes all but unbearable.

The weakness accompanying neuritis produces a peculiar effect upon those muscles of the feet and wrist which hold these members in an extended position, so that they drop forward, in a form of paralysis. This phenomenon is known as "foot" or "wrist" drop. The "knee jerk", that tendency of the foot to jump upward when a "free-swinging" leg is struck smartly below the knee, is also abolished. This is a most significant sign, and shows a very unfavorable degree of progress in the disease. In addition to this "deadness" of the extremities there is also a decided numbness, — a lack of the normal perception to sensation in the surface nerves.

Neuritis may frequently be confused with "occupation neurosis", that form of muscle cramp affecting writers, seamstresses, telegraph operators, typewriters, pianists, and others whose occupations force them to use one group of muscles to an excessive degree.

"Writer's cramp" is really miscalled neuritis more frequently than it is called by its own name. They are alike only in that they are both painful; for in neurosis the pain, spasm, and tremor develop from fatigue and "nerve tire", manifested more frequently when the victim is run down.

The first symptoms are a dull ache, relieved by discontinuing the thing that causes it. However, if one's job possesses him, and he is in the position of the man who had a firm, manly grasp on the bull's tail and couldn't let go, the condition is aggravated, until the pain, spasm, and incoördinate tremor become chronic. In neurosis, as a usual rule, motions not connected with the particular group of movements that stand *in loco parentis* to this abominable condition are performed without any appreciable difficulty. It is usually when the attempt is made to grasp the pen, pound the typewriter or piano, or do whatever neurosis

insists that you should not do, that pain is felt. If you let it have its own way, it is satisfied to sit tight. It is only when you begin to dandle it that the trouble begins.

And this is the clue to the treatment: Rest, followed by rest, and then some more rest; also food, — good, hearty, wholesome food, — and plenty of it; and massage, local gymnastics, exercising the muscle groups in other and different ways, which, apart from rest, is the very treatment that will be likely to cause neuritis to raise its head and howl.

Neuritis demands counter-irritation, either blisters along the course of the nerve by cauterizing, or any other measure that draws the inflammation out of the nerve structure and to the surface, — the very thing that to neurosis is as a red flag to a bull.

These are only a few of the grosser differences; but from them it can readily be seen that it is very essential to know what is

what, because upon the selection of a proper treatment depends practically the only hope of ultimate recovery — ultimate enough at best.

Neuritis has also been confused with rheumatism and neuralgia, and, under a mistaken idea as to its identity, received the treatment intended for them. Rheumatism, for instance, simulates neuritis so closely that sometimes the only way to tell them apart is by the quickly resulting disability and shrinking of the muscles that accompany neuritis. In other respects, — the localization of the pain, tenderness over the nerve, and apparent impairment of the nerve function, — the symptoms may be common to rheumatism or neuritis. But the muscular disability and atrophy tie a pink ribbon round one of the twins, and name him "Neuritis", effectually distinguishing him from his brother "Rheuma." We can then treat him as he deserves; whereas, before he was

labeled, the salicylates and other remedies given Rheuma might only have made him more peevish and irritable.

Neuritis is also mistaken for neuralgia, another imp of the same brood, but of quite a different species, when it comes to quieting its protesting shrieks. However, if one looks him closely in the eye, the difference is readily apparent; for, in the chronic, mild form of neuritis, the only one that could be confused with neuralgia, the pain and tenderness of the nerve are constant, and aggravated by pressure, while in neuralgia the pain is darting and paroxysmal, usually relieved by pressure, and the tenderness, if present at all, is visible to the naked eye only during the jumping paroxysms. This is worth remembering; for in neuralgia, as well as in the neuroses due to nerve starvation, the *enfant terrible* is screaming for food and stimulants, while in neuritis he is shouting his head off for a rest. He is so deter-

mined to enforce peace and quiet that he won't let any one else have any.

So it is important that these various diseases be differentiated, as the methods and remedies indicated for one might be diametrically contraindicated in the others. Indeed, their symptoms are sometimes so interwoven and mixed that even the cleverest physicians are fooled.

True inflammation of the nerves is classified as "localized" or "multiple", depending upon whether one or a number of nerves are affected. Naturally, the less involved the condition, and the milder the attack, the brighter the chances for recovery. But even the mildest forms frequently prove very intractable, requiring months, sometimes years, before they are completely pacified and content to settle down and behave normally.

Neuritis may be caused by anything and everything that poisons or inflames the nerve

structure. Perhaps the commonest cause is the inflammation resulting from cold. The cheering football enthusiast who sits exposed to penetrating arctic breezes, while a squad of husky giants get up an appetite and fracture one another's ribs in a mêlée over a leather ovoid, should really say "I told you so," instead of "Where the deuce did I get this?" when Neuritis Junior begins to scream for help. An ounce of prevention is worth several pounds of cure in this form of neuritis.

Perhaps the next more popular variety is that due to injuries, — blows upon the nerves, falls, sprains, the stretching and tearing that follow fractures or dislocation, electrical shocks, and wherever the parts have been subjected to unusual or violent strain. This should preach a sermon to overambitious and exuberant youths who may have to pay the piper all the remaining years of their lives for some athletic excess

committed in their school or college career.

Next we have the rubicund countenance of our old friend John, surnamed Barleycorn, intruding itself. Neuritis is — or should be, if alcohol were properly appreciated as a cause of nerve inflammation — a convincing reason for periodic bacchanals; for it proves that if one must drink alcohol, the only proper way to drink it is to consume the entire month's allowance in a night or two, get it over with, sober up, and let the system recover a tolerable degree of normality once more. It is the steady drinker, not the periodical drunkard, who develops screaming nerves and the other symptoms of neuritis.

Women, because of their more highly organized nervous system, and the tension under which many of them exist, are particularly liable to attacks of alcoholic neuritis, — which goes to show that, whatever else he may or may not do, King Alcohol

gives women their rights, — perhaps even more than their legitimate share of them. A very simple and highly effective method of curing this form of neuritis — provided the nerves haven't got the habit — is to stop drinking.

Then we have "senile neuritis", the nerve inflammation of what might be called the mineral age of man, that period when his former soft, fibrous, or cartilaginous structures are slowly turning into limestone. The nerves become pinched by the gradual encroachment of the unyielding substance, and shriek aloud in their anguish. A light diet, calculated to prevent the formation of lime phosphates, — as green vegetables, milk, eggs, well-cooked cereals, fish, oysters, a small amount of meat, and plenty of pure, cool (not iced) water, — is rational, and will retard the mineralization of tissue.

Neuritis from toxins developed within the body is next most frequently met.

Gout, rheumatism, and the uric acid condition generally, anemia, cancer, that peculiar state of "not just so" which predisposes to epilepsy, and the very obscure but highly prevalent disease known as diabetes, all act as Lucrezia Borgias to the nervous system.

Then, from the outside, to help in this nefarious work of poisoning the nerves, we have illuminating gas and bad air of various brands. Benzine fumes have also been found guilty of neuritis.

Next we have the infective poisons, produced by microörganisms of various kinds. These run a ruffianly gamut from beriberi and blood poisoning to whooping-cough. In between we have diphtheria, influenza, typhoid, measles, pneumonia, tuberculosis, malaria, and a number of other diseases — all produced by bullet-headed bugs that would sooner fight than eat. Specific treatment for the cure of the original disease, as quinine or arsenic in malaria, autogenous

vaccines (those made from the patient's own particular private collection of germs), and specifically indicated remedies, must be resorted to before the neuritic nerve will stop its howling. The neuritis following ptomaine poisoning from eating food that is undergoing putrefaction, might also be classed among the infective diseases.

Then, to add variety and spice to the attempted assassination of the nervous system, we have metallic poisoning. Painters and decorators, who have to scrape walls or surfaces covered with lead paint, and workers in lead, are very likely to develop neuritis. Formerly, before lead water pipes were practically abolished, many cases were traced to the use of water that had been allowed to stand too long in the pipes. Of course, this form is readily diagnosed by the abdominal symptoms accompanying lead poisoning, and the characteristic blue line at the margin of the gums. A most peculiar diagnostic

factor also is that if there is a "drop", it always occurs in the wrist, in lead poisoning; whereas, with arsenic, another common form of metallic poisoning, the drop is invariably in the foot. Mercury, phosphorus, and silver have also much to answer for in causing nerve inflammation. Neuritis from metallic poisoning easily clears up with the removal of the cause; although it takes its own time about it.

A mysterious and quite frequently met variety of nerve inflammation develops from some unknown poison generated within the system. This probably originates in malmetabolism, — the too rapid formation of "end products" from food, or the retention of these products in the system. Elimination — first, last, and all the time — promises the best results here.

Perhaps the most interesting of all "species" of neuritis, from the viewpoint of one who is on the outside looking in, is beriberi

or kakke, very common in our Philippine possessions, and in Japan, China, India, Ceylon, and other tropical localities. It furnishes a perpetual bone of contention to medical men, half of whom vehemently contend that it is due to eating white bread, or rice from which the pericarp (the outer shell) has been removed; while the remainder, with equal vigor, insist that it is produced by a microörganism that has not yet been branded.

It is very significant, to say the least, that this disease has been produced in pigeons by feeding them hulled or polished rice, and then afterward cured by feeding them the hulls, and also that Newfoundland fishermen who eat white bread exclusively, — because they can get nothing else, — and among whom beriberi is very prevalent, "clear up" after they get whole wheat bread for a while; also that an extract of the pericarp substance seems materially to "help" the kakke.

One of the greatest dangers of neuritis is the possibility of forming the morphine habit. Painful diseases of the nerves, more than any other bodily condition, furnish an excuse for resorting to narcotic drugs for the temporary relief that generally follows their use. Then suddenly, before the patient is aware of it, he is fast in the clutches of his worst enemy. For the poison that brings the surcease from pain, which smooths the furrowed brow, and hushes the anguished nerves, is really an enemy whose fangs are fastened deep in the very soul of its all but hopeless victim. The pain, twitching, and irritation of neuritis return in tenfold severity when the effects of the benumbing drug are dissipated, or when it is purposely withheld, and if the condition for which it was given is not corrected, there is but small chance of withstanding the hell of morphine withdrawal and of nerve inflammation at the same time.

Better refuse the first dose of morphine,

and you will never have to tear the life-sapping vampire of the one-hundredth or the one-thousandth dose from your throat. Remember that, no matter how smilingly it beckons, morphine is a fearful handicap to carry to the goal of recovery from neuritis. It locks up the secretions, and prevents proper elimination, it retards digestion and assimilation, and causes defects and malnutrition that develop the very condition it is supposed to relieve.

After all is said, the principal thing to do for screaming nerves is to find out what they are yelling about — like a faithful old nurse turning a baby over and examining it carefully for the pin. If we find the pin, the thing that makes baby yell, and remove it, there is a very good chance that it will stop its hullabaloo, after a reasonable and proper period of expressing resentment has elapsed. And remember, in many cases, it takes quite a while to locate this pin and remove it.

That is what makes neuritis such an interesting disease. There are so many things it can be, and only a few that it is. Its cause is like the needle in the bale of hay. We know it is there—but where? The search for this cause, and its cure, when found, may consume years. But it will be time and effort well spent; for no one yet was very happy and contented with "Screaming Nerves."

CHAPTER IX

Side-Stepping Stoutness

AFTER all, Job was never called upon to reduce his belt measure ten inches. And how much less patient the ill-tempered Xantippe might have been had she been forced to interrupt a rolling exercise in order to come down and help her philosophic husband find the keyhole.

Yet a moderate excess of fat is one of our very best forms of life and health insurance. It is Nature's cache, — a storehouse of food and energy, a fuel reserve on which she draws in times of stress.

We were disposed to consider fat merely as a substance valuable in filling hollows and stretching skins to a comfortable snugness.

But we are now beginning to recognize that fat is one of the most valuable and indispensable structures concealed about our person. As an internal ulster a comfortable coat of adipose cannot be improved upon. If we are to remain healthy, every tissue of the body, except the nails and teeth, must have more or less of some form of fat, either incorporated in it or closely tied up with it. This is true even of our lordly brains, and delicate, high-strung nerves; for both consist in nearly one half lecithin, more familiarly known as "nerve-fat." So to be fat-headed may be no great calamity, after all.

Presence of fat in adequate quantities makes life's way easy by oiling the sheaves of the muscles, and by putting sufficient cushioning on our protruding angles and corners to enable us to move without cracking our skins. Even when the poet "with eye in fine frenzy rolling" flashes his inspired glance from earth to Heaven, and from

Heaven to earth again, his eyeball rotates upon a nice soft bed of fat. Bone marrow is composed largely of this oleaginous substance. Some of the most important and vital processes in blood-building are located within the fatty laboratories of our long bones. Also it is now believed that the anæsthetic effects of ether and chloroform are due to some marvelous affinity their gases have for certain fatty substances in the nerve tissue.

If plump people are stricken by fever, or any wasting disease, they have at least a thirty per cent. better chance of recovery than has the spare, emaciated individual. Fever burns fuel; physiologically it is much cheaper to give it fat to oxydize than it is to let it burn up more vital tissues.

Every one knows that each ounce increase in the consumptive's weight lifts a corresponding load from his heart, and enhances his prospects of ultimate recovery. Calculating life insurance statisticians recognize that

those of tubercular ancestry who are carrying ten or fifteen pounds in excess of the standard weight for their height and age have a twenty per cent. better chance of escaping tuberculosis than the same individuals of normal weight.

Many neurasthenics are physically, as well as nervously, bankrupt, and one of the most successful methods of restoring their physical bank balance is to pad them with fat. To this end, much rest in bed and "forced feeding" is resorted to, with just sufficient exercise in the open air to prevent under-oxydation and liver torpidity.

For that long journey down the gentle slopes of Age there is no ballast quite so serviceable as fifteen or twenty pounds of nice rich fat, stowed comfortably amidships, or wherever it doesn't interfere with our engine-room and boilers, — the heart and lungs. The body so freighted will much better weather the blustery gales of business wear

and tear; the strong persistent head-winds of loneliness and disillusionment; or the black tempests loosed by the sinking of loved ones into the deeps of the Quiet Sea.

Yet every shield has a reverse. There is a point beyond which fat is excess baggage, and in which the effort expended in carrying it around becomes love's labor lost. This deadline is passed when we carry about more than the number of pounds permitted by the cold-blooded height, age, and weight tables. Then every excessive pound constitutes itself an oleaginous handicap in the physical race. No man who is able to rock his abdomen to sleep in his lap is properly qualified for the hurdles of life. To be fat and scant of breath, then, is the least of our punishment. The system will ultimately demand its pound of flesh, freed from clogging envelopes of fat.

There is no denying that in obesity the heart must work harder to lift its column of blood and send it coursing to the extremities;

that the lungs must be overworked in order to supply oxygen to superabundant tissue; and that even so grave a condition as fatty degeneration of important internal organs may spell final ruin for the excessively corpulent. Admitting that fatty degeneration is sometimes likely to occur in thin, emaciated individuals, it is much more prevalent among those of Falstaffian build. This is the most serious penalty that Nature inflicts for inordinate fatness. But true fatty degeneration is comparatively rare.

Fat folk are especially liable to heat prostration, hardening of the arteries, dropsy, annoying skin eruptions, diabetes, asthma, apoplexy, gall stones, and gout. They stand serious operations poorly, and lack resistance to acute infection. Also, they are very subject to anemia, and conditions resulting from lack of red cells in the blood, and peculiarly enough, anemia returns this compliment by conducing to fat more than does plethora.

This will be understood when we remember that oxygen, which burns up fat, is carried through the circulation in the red corpuscles. Consequently, those who lack red corpuscles, as do the anemic, cannot oxydize and "break down" the fat globules as rapidly as can the full-blooded. This explains why sometimes "breaking down" results from "building up."

But there are some things worse than being overly plump, and these are the methods sometimes used to eradicate the condition. The worst evil with these is that the more effectual, the more dangerous they are. Remedies and methods that "just make the fat fly" are extremely likely to make the owner of the fat fly also. Avoid, as you would a pestilence, all those wonderful agents discovered by a renowned "professor" in the wilds of Beloochistan, or bequeathed to the advertiser by some famous Indian Medicine Man. They are usually ninety-eight per cent. fake, and the balance pure swindle. The

only two internal remedies which have any certain value as "fat reducers" are uncertain as to what else they may do while they are reducing. Consequently, they should never be used except under the watchful guidance of a physician. Most other remedies are valueless. In fact, the manufacturers of "anti-fat" nostrums have guileless consciences, like cormorants, together with a sardonic quality of humor that Mephistopheles would have envied.

This was demonstrated by the Bureau of Chemistry of the United States Department of Agriculture, which recently "tested out" a series of nostrums widely advertised as fat reducers. Two of the subjects of the experiments were obliged, after the second week, to stop taking a "favorite specific" of a Great Obesity Specialist. If they hadn't stopped, the "cure" might have killed them.

Another subject gained two and a half pounds on a "Guaranteed Discovery," in-

stead of joyfully parting with any. He quit, alleging that he had all he could do to get around in his present condition.

Another victim scrupulously followed a diet list, and conscientiously carried out a series of exercises. He lost eighteen pounds in six months, chiefly because he ate no starchy food, bread, butter, pastries, fats, or sweets. However, within six weeks after discontinuing this excellent course of treatment, for which thousands had paid and will continue to pay, good money, he was again fair, fat, and forty, — and gaining rapidly in the last two items.

Other ingenious preparations tested by the Bureau contained mostly soap. All you were required to do with these was to rub long and strong enough, and the fat would leave the rubbed spot: which is true. But none could remain at that spot long enough to accomplish this. They would necessarily have to stop for meals and a reasonable amount of

sleep, and many of them might have other business which would demand some share of their attention. Otherwise the "cure" would work perfectly.

Another effective method of being swindled in getting slim consists in placing epsom salts, washing soda, or other alkalies in the bath water. These, and similarly innocuous compounds, are the basis of most of the external obesity cures, — those wonderful fountains of sveltitude, where you simply put a few cents' worth of something for which you paid a dollar into the bath water, and the fat is "washed away", vanishing with a chuckling gurgle down the waste pipe. The ingenious philosopher in *Gulliver's Travels* wasted his time and talents in attempting to bottle the sunshine and extract moonbeams from cucumbers. He should have invented washing-soda bath salts that banish blubber, and not have left this remarkable achievement for his unregenerate fat-reducing descendants.

The potent feature of most of the so-called obesity cures is the assurance of their promoters that it is "not necessary to change your habits in the slightest." Also that "you may eat all you want", which usually has a strong appeal for most of those upholstered amply, but not well.

But, it will be asked, is there no balm in Gilead? Is there no way of parting amicably with that perilous stuff that doth weigh upon the heart — and all the other internal organs?

There are ways, many of them. Safe, sound, and conservative ways, but mostly they lie over the rough and arduous paths of self-denial, and the pilgrim scourges himself onward with the whip of hard work.

First, it must be recognized that there are certain diseases in which excessive corpulency is merely a symptom, among which are dropsy and disturbances in the pituitary and other glands. Before fat reduction is attempted, these causes for increased avoir-

dupois must be excluded by careful examination of a physician.

Failing to find such cause, we can definitely assume that herein the patient must minister to himself, and to that effect he would do well to inaugurate a campaign somewhat after this line of reasoning. Fat is derived from food, and no matter how little food we may be getting, we are getting either the wrong kind, or too much of the right kind. In either case we can correct this readily. It requires merely that we reduce the fuel intake of food to a point below the expenditure in bodily activity; or else increase bodily activity until more than the daily intake of food energy is consumed, or both. In short, the cure for obesity is less eating and more exercise. This is also a permanent cure, provided one does not discontinue the things that make it permanent.

While the system can make fat out of any foodstuff, it makes it with almost ridiculous

ease from starches and sugars. These foods, by readily yielding their energy, save the expenditure of stored fat (which might be called unused energy), and being rapidly assimilated, aid in the increase of this store. Alcohol also, by unduly hastening the conversion of albumins, sets free fat-producing substances, which materially assist in padding the over-generous blanket of fat.

There are three much vaunted and highly scientific diet systems, calculated to render the surfeited sylphlike. They are all, in varying degree, based upon the vigorous Spartan principle of semi-starvation.

Ebstein is the most liberal, as befits his Germanic origin. Next comes Oertel, with a restricted menu consisting of the lean of roast or boiled beef, veal, mutton, and game. Also fresh eggs, and green vegetables, such as cabbage and spinach, small quantities of sugars, starches, and fat, and very limited supplies of fluid.

Most dangerous of all for home treatment is Doctor Banting's system, which totally excludes fats, forbids the largest possible amount of sugar and starch, and limits the daily indulgence in fluids to a trifle more than one quart. The total quantity of food is reduced to between twenty and twenty-five ounces of dry food daily, half of this being meat. The fault with Banting's method — and this is true in lesser degree of the others also—is that it fails to provide for the elimination of waste products. If there is nothing wrong with a patient before he commences this drastic treatment, except that he is too fat, there will likely be before he concludes — that is, provided he doesn't quit before he concludes.

Yet it is not necessary to punish one's self dietetically, or risk certain dangers, for the sake of accumulating curves where formerly tossed and seethed a wide, shapeless expanse. It is merely necessary to eliminate all surplus

features of the diet, and limit the amount of food to that required to maintain strength.

This is accomplished by relying upon lean meats, with liberal amounts of green vegetables to give bulk and satiety. These may include lettuce, celery, tomatoes, onions, parsley, and sour fruit. Also salads, provided they are eaten without oil.

Pork, and all fat meats, oily fish, such as mackerel and salmon, potatoes, rice, pie, tapioca, and farinaceous puddings should be avoided. Also rich gravies and sauces, cakes, pastries and ice cream, beets and sweet fruits, — figs, prunes, dates, grapes and oranges, candies and all sugars, so far as possible. Graham bread and gems, or dry toast, may be substituted for white bread.

No attempt should be made to replace sugar with saccharine, except by the advice of a physician, as it is a dangerous drug for indiscriminate use. Taboo beer and malt liquors as you would seal oil, pemmican, or chocolate bars.

Fluids should be limited in quantity, but not so limited that the system will suffer from lack of one of its principal sources of elimination. A cup of hot or cold water, with the unsweetened juice of half a lemon, on rising in the morning, and another in the afternoon, helps the liver to keep active, and sometimes aids in fat reduction.

The use of plain soups which are filling but not fattening should be encouraged. Milk, which is about seven eighths water and one eighth solids, is also excellent. Buttermilk, or soured milk, — *au naturel*, or beaten into a froth with an egg beater, — if eaten slowly, a small mouthful at a time, makes a nourishing and satisfying meal.

If the food is thoroughly chewed, not necessarily Fletcherized, much less of it will satisfy the appetite. Masticate each mouthful until it is turned into a thin liquid, or until swallowing becomes almost an involuntary act.

A high-strung, nervous, pessimistic man or woman will convert into energy food that the slow-moving, placid optimist stores up as fat. So, unless you choose to have your attractiveness measured by the pound, worry mildly. Have an object in life. Even the mad gallop on a hobby-horse is better than the *dolce far niente* of the lotus eater.

Cold water baths, if they do not cause rheumatism or nervous shock, are an excellent aid in fat-combustion.

It is also well to avoid sleeping too much, and it is especially advisable to forego the doubtful luxury of the afternoon nap. We build tissue faster during sleep than we do while active or awake. Six or seven hours of uninterrupted sleep, provided one feels rested and recuperated, should be enough. Get enough sleep to repair waste; but be satisfied with enough.

Exercise of all kinds is almost indispensable. When it can be indulged in, swimming is

probably the best form, as it exercises the little-used muscles of the abdomen, as well as nearly every other muscle in the body, except, perhaps, those rudimentary muscles that wag our ears. The cold water also melts away the stored fat in a natural and extremely effective manner.

Walking, golfing, passing the medicine-ball, dancing, horseback-riding, tennis, boating, and all outdoor activities and forms of gymnastics that can be practised in well-ventilated rooms, are also very beneficial. In fact, all muscular exertion that does not put too much strain upon the heart and circulatory apparatus is helpful. All the stooping, twisting, and turning movements of housework, which do not have to be conducted to the accompaniment of a storm of dust or a cloud of steam, are splendid "reducers."

Exercise is best that provides an object. It is then not so likely to pall upon one and become a penance. But usually the pounds

they must lose become a sufficiently important object to the ultra-corpulent. And remember, as an incentive to exercise in the open air, fat is composed chiefly of carbon, and oxygen burns carbon just as fire consumes blubber.

Massage, accompanied by stretching and flexing of the muscles, is a very sensible procedure, especially if it can be done by the one who is to derive chiefest benefit from it.

Where two or more chins grow where only one grew some time before, the chins and neck should be vigorously massaged with alternate strokes, rubbing briskly from center to sides.

The facial wrinkles that sometimes follow fat removal may be cold-compressed or iced into a state of tonic contraction.

Some ladies derive considerable benefit from rolling over and over on a rug; others crawl, bend, stretch, stoop, twist, and turn like contortionists. Others gallop madly about the floor on all fours, to the great confusion of their common enemy, fat. Others

stretch arms wildly up, and as far back as physical exigencies permit, with much ultimate reduction in bust measure.

Lying upon the back and slowly raising the legs with stiffened knees, then lowering them with equal deliberation, discourages embonpoint. That classic exercise known as "picking pins", in which the devotee stands with stiffened knees and, with outstretched fingers, touches the floor repeatedly, also punishes ponderosity.

Kicking is good for hips and bad for fat. High-kicking à la ballet dancer; front-kicking, ostrich fashion; and side and back kicking, mule fashion, are all very effective, as contributing to the straight front — and sides. But bear in mind that exercise, to have any permanent value, must be regularly done. Like woman's work, it must be begun anew each day.

Turkish baths will reduce flesh, but those strong enough to stand their debilitating

influence are strong enough to get rid of their excess in safer ways. And those not sufficiently sturdy had better bear the ills they have rather than fly to others they know not of.

The surgical amputation of fat will never have a very large appeal. First, because unless one materially alters one's mode of life, the fat will not stay amputated; and secondly, because none but the most heroic or foolhardy will subject themselves to the dangers of a major surgical operation, except as a very last resort. And then only once in a lifetime; whereas fat reduction is a lifetime job. At least, it seems like a lifetime to those engaged in it.

Do not depend entirely upon the unreliable scales for affirmative evidence that you are parting with your too bountiful store. Rather leave it to the unbiased decision of the tape measure. For fat is of a sponge-like texture, and very light in weight. Much of it may

disappear with but little corresponding reduction in weight. If a woman needs the services of a dressmaker to take in four or five inches in her gowns, or a man requires his tailor to take a reef in his waistband, or furl the back of his coat, scales are not needed.

Any method that produces irritability, restlessness, weakness, and an uncomfortable craving for food is doing far more harm than are the few extra pounds of peaceful adipose. No method which endangers life and health is safe to experiment with. Only those which are tried and true, and which meet the approval of one's physician, should be ventured, — always remembering that more exercise and less food will indubitably make fat Jack thin. It means denial, much hard work, and little rest. But it can be done.

After all, if a queen bee results from a change in diet, why should not some similar course produce the desired modification in the human form divine?

CHAPTER X

Hair and Heads

AS a principle of hirsute economics, it might well be contended that a hair on the head is worth two in the brush. Further, it may be observed that the perennial attempt to keep that hair out of the brush and on the head has been one of the most interesting and inspiring pursuits of mankind — and especially womankind — ever since men and women first realized how much more beautiful they were with it than without it.

Considering this mop of a material that has absolutely no physical or physiological use, which toils not, neither does it spin, which is not sufficiently voluminous to keep one warm in winter or cool in summer, which isn't

thick enough to overcome the direful effects of a carefully directed brickbat, which is merely a perpetual source of labor and worry, the miracle is that folk put so much store by hair as they do; that, instead of rejoicing in the loss of it, — as the old man in Plato's dialogue rejoiced in the senile subsidence of the madness called "love", — they bewail its passing.

For who is there to deny that it would be infinitely more easy to comb his hair with a sponge than it is to fritter away hours shampooing, singeing, and dousing it with tonics, to say nothing of months of valuable time spent in massaging its base of attachment?

And yet, with a hearty, cheerful, I'll-stay-with-you-awhile head of hair, a man arrogantly assumes the front of Jove himself. Omitted from his make-up, all the voyage of his life is bound in jest and "josh", he becomes the butt of rude and carping criticism, and must perforce submit to the scoffing injunc-

tion, "Go up, thou baldhead!" And for a woman to lose her golden, or raven, or neutral-colored tresses is a calamity beside which the fall of Troy and the destruction of Babylon are mere bagatelles.

Why is this? Why is it that a woman is perfectly willing to exhibit her neck and shoulders in the winter, and her ankles in the summer, but her bare scalp never? Why should men and women secure a variegated assortment of wigs, rats, puffs, switches, and what-nots, and arrogate to themselves a youthful aspect though they have it not? These be vexing questions indeed, and yet there is an answer. Here it is:

It is inherent in man — meaning woman also — to be proud of his luxuriant locks. Hair is subconsciously associated with physical well-being, as an expression of bodily vitality. Man resents being thought a weakling, even though he is. He also unconsciously assumes the mental attitude of the

old lion with his mane, or the peacock with his tail, or the stag with his spreading antlers. These were intended by Nature to fascinate and hypnotize the female of the species into forgetting all other imperfections of her ardent suitor.

For a baldheaded cave man would have stood no more show — nor have a right to expect that he would — with the lady members of his high-born race than would Caliban with Juno. It would be a mésalliance, in the complete meaning of the word. And for a baldheaded cave lady presuming even to think of setting her cap for any Neanderthaloid gentleman in his right senses, the idea is preposterous! Not by the widest stretch of the imagination could we conceive of our grandad of the Stone Age knocking lustily with a gnarled club on the occiput of a lady with a head like the side view of an egg. Besides, suppose he did, for spite, there would be no hair whereby he could drag her into his

cave, — the only accepted and conventional method of courtship in those halcyon days. Our ancestors simply had to have hair. No excuses were accepted.

Now, these mental impressions are transmitted to us as inheritances. They are the experience of the race, just as is our instinctive fear of the dark, or of high places, or of snakes and poisonous insects. That's why we hate to be bald, why we fight, tooth and nail, for the last faint wisp of our personal hair, no matter how humble or mud-colored it may be.

As a matter of cold philosophy and scientific reason, in this age of hats, steam heat, umbrellas, sunshades, and infected barbers' tools, a man or woman would be better off without the incumbrance of hair. But it will take another five hundred thousand years to persuade people to this view.

Let us see, then, why and how the hair leaves the head, why it is driven from home

and fond companions. There have been more arguments about this question than would fill another Alexandrian library, if it were all written out on rolls of parchment. Out of the turmoil and the clash of opposing legions of opinions, and from the débris left scattered on many windy battlefields, we may gather some few fragments of fact; surprisingly few, considering the din and the energy with which the opposing phalanxes threshed the question.

First, the reassuring side. As a matter of cheer and comfort, we should remember that no one has yet suffered a fatal attack of baldhead. Further, if the hair didn't fall, it wouldn't stay on. And one reason it stays on as long as it does is because each hair falls out naturally every little while, — from two months to two years, depending upon conditions, — and is replaced by a new hair, which shoots up from the root through the shaft compulsorily made vacant by the simple

process of the newcomer's pushing the old-timer out of his vigorous way. So we are constantly losing hair. This is all right, if the rate of replacement equals the rate of loss. If the ratio swings in the wrong direction, however, we are shortly conscious of the unpleasant fact that complete or partial baldness looms dismally over the not-distant horizon.

Next it has been shown that hair vigor leans upon the sturdy shoulder of physical vigor: sometimes, but not always. If the general health is good, and the body well nourished, the hair has undoubtedly a better chance for the pursuit of happiness than if the body is anemic, toneless, and generally run down; for the first thing to suffer is the hair. Nature simply says, "Pooh! What's the use of my wasting nutritive substance on a bunch of withered material that isn't even fit to stuff a mattress with?" Then she shuts off the supply of food, and the hairs starve to death and drop off one by one. If we expect to

hold to our hair, we must give the hair something to hold to.

We know now that high hats, or tight hats, or bare heads are all one to the hair. We used to believe that the tight bands of stiff hats restricted the flow of blood to the scalp, and consequently cut off nutrition from the hair bulbs. Now we know that the temporal arteries, which are the only ones constricted by hatband pressure, have nothing to do with supplying that part of the scalp — on the classic dome of the head — where, in man, the hair first parts reluctantly from its moorings. So it readily can be seen that the hat is not responsible for the hairless head.

Strangely enough, pressure upon the small arteries on the occiput or apex of the cranium, which women practise quite extensively by means of pinning rats and hats on the hair rooted in this area, produces baldness in the region of the temples.

Of course we understand that when hats, or rats, cause perspiration, the moisture mingles with the oil of the hair, producing a condition of rancidity. This rots the hair, and makes it fall untimely; but, for the matter of that, going bareheaded will accomplish the same result, provided it produces perspiration faster than the hair evaporates it.

The next most comforting aspect of hair is that it stays longest on a fat head. The relation between head, fat, and hair is so intimate that, bereaved of fat, the head may survive, but the hair never. For the thing that makes hair possible is that its roots draw a definite proportion of their nourishment from a layer of fat, which is sandwiched in between the bony tables of the skull and the scalp proper. Upon the thickness of this layer of fat depends the thickness of the head of hair it nourishes. And upon its remaining *in situ* depends the continued attachment of hair and head.

SIDE-STEPPING ILL HEALTH

This is one of the most cheerful and yet one of the most painful subjects connected with hair, — cheerful, because no matter what happens, how many dandruff germs may bivouac on the old camp ground, or how fast the hair wilts and droops, or what microbian disease may infect it, if there is a plump layer of fat underneath the scalp, leaving it free to wriggle and be wriggled, without wriggling the skin of the face or the back of the neck at the same time, there is hope.

This explains why hair falls out after exhausting fevers, and comes in again. The body's fat supply is burnt up by the febrile process, or is drawn upon and utilized to furnish energy. Consequently the hair suffers from lack of food, and signifies the same by coming out in handfuls. When the patient's head becomes fat once more the hair returns.

It doesn't matter what else you may have in the way of robust health, a golfer's constitu-

tion, or unlimited time and means wherewith to care for your head, if the layer of the fat is not there. For this fat supplies the scalp with a reserve upon which the hair bulbs may draw at their leisure. And further, it keeps the scalp freely movable: not bound down over a bony skull like the leather on a baseball. We might almost translate the relations of fat and hair and head by saying that one chief reason why the hair vacates the premises is that the scalp does not move. All the care and coaxing in the world will not prevent the hair from deserting a sterile pasture. It isn't "early piety", or a twenty horsepower brain that causes baldness: it is lack of food, and the presence of microbes. This is the clue. Now, how to apply our knowledge.

First, we must understand that germs cause irritation; irritation causes inflammation; and inflammation eats up fat — and sometimes forms scar tissue in its place. With these

facts in mind, let us examine the chief causes of inflammation.

Most important of these is seborrhea, a highly contagious disease. It is caused by microbes, and may be — in fact, almost always is — contracted in barber shops or hairdressing establishments, or by using toilet articles that have been infected by a victim of dandruff. The pathological action set up by these microbes produces an increased flow of the oily secretions at the roots of the hair. These secretions harden and form scales on the surface of the scalp, which obstruct the mouths of the glandular ducts, fill up the hair follicles, and choke the life out of the hair.

In fact, many medical men contend that the dandruff germ can "eat off" the hair itself, without going through the roundabout method of cutting off its base of supplies. In proof they submit that in some of these ancient brushes fastened with a chain to the

washstand in certain old-fashioned hotels, — those awful places advertised as "homelike", — the bristles themselves are partly destroyed by microörganisms. This, however, is probably an error in diagnosis.

In treating seborrhea a weekly shampoo of the scalp with mineral oil, — fortnightly in the case of women, — followed by a thorough washing with some bland vegetable soap incorporating cocoanut or olive oil in its base, afterward rinsing freely and rubbing the scalp with olive or castor oil, affords good results. It may take many weary months of treatment, however, — before these are apparent.

A fungoid disease of the scalp, which afflicts our foreign-born population more frequently than it does native Americans, is favus. This is caused by a vegetable parasite which produces great inflammation and destruction of tissue. If taken in time, however, the disease is readily cured by shaving the

head and subjecting it to thorough antiseptic treatment. But if treatment isn't instituted early enough, or is not sufficiently radical, the condition results in permanent patchy baldness.

Medical men, who have always had a particular fondness for big words, call this baldness "alopocia", a word that means "fox"; this, because the fox sometimes has bald spots on his forehead, and is, in fact, rather susceptible to patchy bald-headedness.

An excess of uric acid in the blood sometimes causes dryness and brittleness of the hair. Indeed, many physicians contend that the uric acid pours out upon the scalp in seeking an outlet from the body on lines of least resistance, killing off the hair, and eating up the fat. Those large, greasy flakes of dandruff are, so they say, merely a combination of uric acid, dirt, and the natural hair oil. Regulation of the diet, with a view to correcting

the uric acid condition of the blood, is indicated here.

Men who work under incandescent electric bulbs are likely to part with their hair at an early age, as also are those who dispense with hats in summer, and ride, golf, or fish bareheaded. It is probable that the actinic rays of the sun have a specially melting influence upon the fatty layer under the scalp, owing to their remarkable powers of penetration. In any event, going bareheaded often results in growing baldheaded.

A prevalent cause of baldness in women is maltreatment of the scalp. This occurs when incompetently trained hairdressers massage scalps that should have perfect rest, and also scrub and rub tender heads that should be cherished and soothed. Such vigorous treatment sets up irritation, if not actual inflammation. Sometimes a little knowledge may be just sufficient to do a great deal of harm. When a condition out of the ordinary affects

the scalp or influences the hair, the proper man to see for advice and treatment is a skin specialist, not a beauty doctor.

"Hot hair cones" for drying the scalp, frequently used in beauty shops, are exceedingly bad for the hair and scalp; also for the heart and lungs. They sometimes produce nausea at the time of use, or car sickness on the way home.

"Scotch showers", which are alternate currents of hot and cold water douched on the scalp, are injurious to the nerves. They also affect the circulation adversely, by too frequently changing the caliber of the little veins and arteries, contracting and expanding them until they lose their natural tone and become flaccid. The best way to dry the hair is in the sun, with a fan. The next way is by a current of plain warm air, without frills or furbelows.

Singeing the hair is another practice that has no reason for existence, except to make

money for barbers and beauty specialists. Any one who ever saw a hair under a microscope knows that it is not a hollow tube full of oil, or through which the oil flows, as sap flows in a tree. A twelve-year-old schoolgirl, who has studied elementary anatomy and physiology, knows that the hair grows from the bottom, by being "pushed up", as do the teeth or finger nails, and the only place there is any "oil" is in the hair bulb, or follicle, at the roots of the hair. She knows that the hair does not "bleed" nor does the "sap" run out, for the simple reason that there isn't any blood or sap to run out. With so many free schools in this blessed country, there is no reason for anybody — particularly barbers and hairdressers — being ignorant of these things. Taboo the "singe." It is merely a scheme for obtaining money under false pretenses, and works actual injury to the hair by making it brittle, by destroying its flexibility.

Scalp and hair cleanliness is excellent, and absolutely essential; but too frequent washing, by removing the natural oil from the scalp and the roots of the hair, especially with soaps containing large proportions of alkali, will cause the hair to dry up and wither off, like any other animal or vegetable growth that has been deprived of its nutrition.

This applies also to the practice of "slicking" the hair, wetting it with water before combing. The best way to "slick" the hair is to do it with two dry brushes and a judicious amount of elbow grease. Brushing the hair conservatively in this manner, alternating the strokes, until the scalp tingles with a genial sensation of warmth, is sensible and excellent.

Massage of the thyroid gland — by stroking the neck below the Adam's apple with perpendicular and lateral motions — has been recommended as a stimulant to dying hair. This is a questionable method. It is possible

that the powerful secretion of the thyroid may have a decided influence upon hair nutrition; but we have no means of knowing what else it may do while it is doing things to the hair. It is not worth while risking the development of a goiter or palpitation of the heart just to keep a few extra hairs out of the hair receiver.

Systematic massage of the scalp offers the best and most rational means of retaining hair. While perhaps a mechanical vibrator with a broad, soft disk is best, it is possible, by pinching the skin and gently moving every part of the scalp back and forth, to loosen it, and stimulate an excellent degree of circulation. This should be practised five or ten minutes at a time, night and morning; oftener if possible.

It is not altogether true that all tonics are useless. Stimulants, such as quinine, cantharides, salicylic acid, etc., if properly used, lend vigor to the scalp, and assist in producing

a mild counter-irritation, which is beneficial to the hair, and the head on which it grows.

Stretching the hair, either by combing or by "putting it up" too snugly, causes it to become lifeless and brittle, because the hair can stretch only one way. It can't stretch back again; so in time it breaks off. If you must pull the hair, pull gently. Thus you'll have more to pull, and you'll be able to pull it for a much longer time.

Take no stock in "get hair quick" schemes. Keep the blood clean and pure, the nutritive powers at concert pitch, and all the infectious or parasitic scalp diseases at a distance.

Expect to lose many of your hundred thousand or hundred and fifty thousand hairs after the age of forty-five. From that time until you become senile you will probably part with many things much more valuable than your hair. But you'll have enough

hair left for all legitimate purposes, if you keep the top of your head soft. Any means you use to this end will be good means; for they'll serve to keep the hair and head united as long as you'll have use for either.

CHAPTER XI

Rheumatism: The Riddle

RHEUMATISM is likely to be something else more frequently than any other disease that afflicts humanity. What we call rheumatism contains less of it to the cubic inch than even the most candid are willing to admit; for rheumatism may be anything from a painful contraction of the muscles of the scalp to flat feet.

In fact, some of the most painful and obstinate forms of rheumatism are neuralgia, which resembles rheumatism only in the respect that they both hurt in the same place. With a superfine contempt for terminology and classification, we label almost any sort of ache or pain, no matter what its cause,

rheumatism; because then we know what we mean — although we don't know what we are talking about.

The derivation of the word *reuma* is all from the Greek, like the disease itself, and means "flow"; ergo, a catarrh or cold. Which comes as near defining what rheumatism is not as anything we could pick out of the dictionary. But this mouth-filling name satisfies both patients and doctors, even though the treatment and the various explanations of its origin do not.

But with this plentiful ignorance of the actual causes of the disease, there is a fine crop of theories, which contain more or less of probability.

Also there is one very painful and protuberant fact, and that is that when a patient has rheumatic fever we can assure him without fear of successful contradiction that he has true inflammatory rheumatism, in its acute, articular form. However, assurance is un-

necessary to an individual with a high fever, prostrating acid sweats, swollen, red, glossy joints, so tender that the slightest draft, touch, or movement will produce paroxysms of pain, who is about as thoroughly miserable as any one can be and still take medicine.

The only satisfaction or consolation he has is that he knows exactly what is the matter with him. He is playing the reluctant host to several billion bugs. We don't know their names yet; although we strongly suspect a little beetle-browed bug by the name of *Streptococcus Rheumaticus*. Indeed, we are quite certain that it must be he, or some of his near relatives, judging from the way the disease "acts", and also from the fact that it responds favorably to vaccines formed from the products of "mixed infection" germs, which it would not do unless these germs were a causative factor in the condition.

It is further thought that these pus-forming organisms came in, looked over the ground, and found that the conditions were not exactly favorable for a general septic onslaught; so compromised by starting a war in the joints, where the phagocytes and other defenders are not so numerous as in the blood stream.

In this connection, one of the most significant and far-reaching of modern medical discoveries, and one that will have a tremendous bearing upon the prognosis and treatment of infective rheumatism, is the recent discovery by Doctor Edward C. Rosenow of the Rush Medical College, Chicago, of a new bacillus that is charged with rheumatism in the first degree. Doctor Rosenow secured this choice specimen by picking out little particles of decaying food from the crypts of the tonsils, — long and unfavorably known as accessories before and after the fact of a lurid variety of diseases, among which

may be mentioned dyspepsia, sciatica, kidney disease, and chronic inflammation of the lining and covering of the heart.

These particles Doctor Rosenow macerated in sterile salt water, and injected into rabbits. The rabbits sickened, presenting all the symptoms of acute rheumatism. The doctor then collected a mixture of blood and serum from the swollen joints, and "planted" it upon gelatin and beef tea, which is to bugs what pâté de foie gras and Camembert cheese are to epicures. The germs liked it so well that they began to grow, and then it was found that a brand-new microparasite had been discovered. These are now being treated as were the antityphoid vaccines, and hope is entertained that they may be as efficacious in stamping out rheumatism as is typhoid vaccine in performing a like kind office for typhoid.

At present six weeks' rest in bed, active elimination, either cold packs or cottonwool

swathed round the joints, and symptomatic treatment, directed toward the relief of pain and bombardment of the bugs, is the best we have to offer.

Acute articular is the most dangerous of all the varied forms of the disease, on account of its "after effects"; for in almost three out of ten cases it leaves the heart crippled. The inflammatory process ultimately spreads into the blood, ulcerates the little gates or valves, either eating away part of their edges, or twisting them out of shape by the formation of scar tissue, so that they no longer close properly. It is claimed that seventy per cent. of all organic heart lesions have their origin in an attack of rheumatic fever.

Also rapid anemia develops in inflammatory rheumatism; both the red cells and the hemoglobin (that element which conveys oxygen through the tissues) frequently being reduced by half.

So, while this disease in its immediate results is much more painful than dangerous, its sequelæ — as with common measles, which mothers regard so lightly — are greatly to be dreaded.

When we leave inflammatory rheumatism we ascend into the domain of medical metaphysics, where one theory is as good as another, and perhaps a big sight better, provided we maintain it with sufficient vigor and vehemence. We may start right on the top of the head for causes.

First, there is "hair-cut" rheumatism. Certain anemic, nervous individuals approach a barber for purposes of hair amputation with their fingers crossed, a rabbit's foot and a horse chestnut in their pockets, and fear and trembling in their hearts; for, unless the weather be balmy, or they go straight to bed, they are due for an attack of stiff neck; doctors think it dignifies it to call it "torticollis." A brisk cathartic, and the

application of, and massage with, some penetrating liniment, usually straightens this out.

Right here we desire to protest against that rapidly growing form of medical iconoclasm which denies therapeutic or other usefulness to liniments. The virtue of a liniment is not entirely in the applier's elbow grease, as they contend; for many active liniments, containing iodine, chloroform, wintergreen, or oil of mustard, are effective merely upon application. An attempt to rub them in frequently results in "taking the hide off." Also the skin *does* absorb, as any who have ever seen a patient salivated by mercurial inunction will remember. Just because our grandmothers used a thing, it should not be automatically condemned. Perhaps, if we extracted the good in the old methods, and incorporated it with our own best, we might do better.

The next cause of rheumatism is found in the nose and the passage running from

the nose to the throat. Here spots of infection, as with the tonsils, permit organisms or toxins to enter the system. Surgical correction of anatomical defects in the nose, and the judicious use of an antiseptic spray, have cured more than one case of chronic rheumatism.

That form of rheumatism known as rheumatoid arthritis — alias arthritis deformans — is, in a large proportion of cases, caused by inflammation in some part of the head, either from infection of the tonsils, or alveolar abscesses (loose teeth or gum boils), or chronic inflammation of the bone cavities (sinuses) connected with the nasal passages.

Which reminds us that foci of infection are also found in decayed teeth; in fact, we can find almost any infection, from cold to appendicitis, in hollow teeth, if we look carefully enough. Many joint afflictions that have resisted medical treatment clear up entirely after a painstaking dentist polishes

off those pus pockets that form round the necks of the teeth at or below the gum margins. Actually, the importance of a dentist's work in the preservation of the general health is only beginning to be recognized. So, if you have chronic rheumatism, tell the dentist about it.

"Rheumatics" or "rheumatiz" is an ailment that is most likely to come with old age, be it early old age, or legitimate old age. It is that form which is aggravated by stooping, or rather by straightening out again after stooping. Many fear these pains as due to kidney trouble. For their ease of mind we emphasize that while the kidneys become smaller in old age, or while they may become diseased, if persistently abused by alcohol or food, they seldom "pain." The discomfort arises simply from the "stiffening" of the muscles of the back, and of the joints between the vertebræ. The thorough application of a mechanical vibrator, or a

high-frequency tube, or a night and morning massage along the spine with equal parts of olive oil and elbow grease frequently works wonders.

True lumbago may be the result of an accumulation of toxic material in the muscles of the back, an irritation of the local nerve supply, or a displaced spinal vertebra. If the former, use a Turkish bath, or that gentle form of treatment bequeathed by the Chinese, known as acupuncture, wherein sterilized needles are run several inches into the muscles, and left there for three or four minutes. Another pleasant practice is to inject directly into the involved muscles a good liberal "shot" of ice-cold normal salt solution. This sometimes gives much more than temporary relief. If the nervous system is run down, use a course of nerve tonics; and if from vertebral displacement, the services of a good osteopath.

Sciatica is generally classed as rheumatism

because it hurts the same way — only worse. It is frequently due to slight dislocations of the hip joint, known as sacro-iliac subluxations. If such is found to be the case, osteopathy will cure it; but if the sciatica is neuralgic in origin, if it is the nerve bawling lustily for food, feed it; hammering it over the head with analgetics and sedatives is merely palliative. When it recovers consciousness it will redouble its protesting shrieks.

Tiny veins in the legs sometimes, as the result of long standing or other strain, become dilated and stretched. This causes a "pinching" of the nerves, and this pinching causes them to yell for help. An elastic stocking or other support will quiet them; but a better way is to quit the standing job, and get one as president of a bank, or some light form of occupation that can be conducted from a chair.

Then we have a very painful and chronic

form of rheumatism due to "flat feet", also known as "broken" or "falling" arch. This causes more or less severe pain in the feet and the lower legs, mostly along the shin bone. There is almost instant relief for this variety in having an orthopedist fit a pair of "arch supporters", relieving the pressure of the very numerous and obstreperous nerves in the feet. We would emphasize here the importance of having an expert fit these arches, as the stock supports are usually as obnoxious and inutile as the stock spectacles which ill-advised and literally short-sighted patients with refractive troubles invest in.

Then we have the rheumatism of fatigue, complained of by typists, clerks, musicians, engineers, and others whose occupations force them to use one set of muscles to an excessive degree. This is really nothing more or less than "muscle tire", called euphoniously "occupation neurosis." The cure for it is simply to give up the occupation for a time.

Another form of rheumatism, and a very prevalent one, is a "cold" — or perhaps we should more accurately say that the thing that causes a cold is equally efficacious in "settling" that "cold" in the joints.

This brings us to the "uric acid theory", discredited by many, but a very real, substantial fact, nevertheless. The ingredients of this particular form of rheumatism are an excess of uric acid in the system, and then a chill on some particularly exposed area of the body. This throws the uric acid out of solution in the circulation, and deposits it, in the form of minute crystals, in the tissues or joints. The actuating, or beginning, cause of this condition is malmetabolism, — the insufficient conversion of food products into nutritive pabulum, and the retention of toxic material in the system.

If any one with an excess of acid does not believe that rheumatism is dependent upon this, all he has to do to convince himself of

the truth of it is to eat three or four nice, hearty meals "hand running", — thick, juicy steaks preferred, — and wash them down with copious quantities of heavy ales or other alcoholic beverages, or strong tea or coffee, which is almost as bad. If he has any tendency toward rheumatism, this diet is admirably calculated to help it; that is, to help it manifest.

If, however, he is sincerely desirous of ridding himself of this obstinate and painful form of rheumatism, it will be necessary to eliminate from his diet all elements that go to form uric acid; sugars, as much starch as possible (starch is converted into a form of sugar before being utilized), and all foods that tax the digestion. Taboo fried meats, "rich" dishes, especially those which contain a large amount of purin-forming material. Favor a light diet of cracked wheat, rice, macaroni, spaghetti, hominy, milk, eggs, butter, olives, gelatin, and almost all fruits

that are not too acid in their nature. Also eat liberally of green vegetables, preferably those which grow above the ground, such as cauliflower, cabbage, lettuce, spinach, celery, and onions. Most nuts, excepting peanuts, are acceptable.

Flush the system with ample quantities of pure, soft water, and keep all the organs of elimination, especially the pores of the skin, very active. Alkaline salts, having a solvent effect upon uric acid, will be found beneficial. These do not include lithia, which has little or no acid solvent powers.

Electricity, in the form of static or the high-frequency current, increases oxidation; in other words, it burns up waste material. Some rheumatics may be said to be only half baked. So, completing the baking — in a hot-air oven — frequently rids the premises of their accumulated uric acid; for heat dissolves the crystals, throws them again into the blood stream, and favors their elimination.

Above all, if you have too much acid, be discreet. If you must attend football games, go fishing, or indulge in any exercise in which the chief work consists in sitting still in a gale of wind, do it by proxy. Send a husky substitute. Otherwise, the rheumatologist is likely to get you for a patient.

In connection with this subject of uric acid it is intresting to note that the reason we "feel it in our bones" when there is to be a drastic change for the worse in the weather is because the toxin and acid-irritated nerves are more sensitive to temperature changes than sound, healthy ones. Some folk are quite proud of their abilities in weather forecasting; but in most of us it is a gift that we would gladly exchange for a yellow dog. For we could get rid of the dog much more easily than we can the biological barometer in our rheumatic joints.

Gout is another of the many forms of rheumatism, except in name. In this con-

dition certain waste products, chiefly uric acid and sodium urate, are not being excreted in normal quantities, because they are manufactured faster than they can be got rid of. Curiously enough, low living is as responsible for gout as high living; a little more so, if anything.

It is a distinct loss of caste to the "three-bottle man" with the thick neck and the apoplectic face to have to admit that his favorite disease has been usurped by those at the opposite end of the dietetic and social scale; but such is the fact. There are the same nodes (protuberances) on the joints, the same thickening and stiffening, the same acute pain, and, unkindest cut of all, relieved by the very things that caused his attack; for a "full" diet, with plenty of red meat and material calculated to make blood, will arrest the condition in the underfed and emaciated victim of tea and toast. Another form of gout attacks neurasthenics, and

produces almost the same clinical symptoms as with the overfed and the underfed.

These are the chief causes of what we know as rheumatism. There are about forty others, including the pains from hidden tumors, old injuries, fatty masses, boils beneath the true skin, muscle cramps due to exposure, contusions, torn ligaments, "growing pains," sprains and other injuries, lead poisoning, locomotor ataxia, abdominal prolapsus, and almost anything else that hurts for which we have no more accurate classification.

Rheumatism is, was, has been, and possibly always will be, a convenient dumping ground for medical ignorance. It says more, and means less, than any other word in the English language.

CHAPTER XII

Seeing Things Straight

"OH wad some power the giftie gie us
To see oursel's as others see us"

might be good advice if the "others" eyes were normal. But the fact is that thousands who think their eyes are normal see us with a defective vision.

Many of these do not know that there is any defect, for they may suffer from goiter or neuralgia, mental exhaustion, indigestion, St. Vitus's dance, or even from nerve irritability and epilepsy, and never suspect the real cause of their troubles. Others treat their "brain fag" to a dose of rest cure, or a course of tonics, when their crying need is for a pair of properly adjusted glasses.

Also, hundreds of thousands of children are considered wayward, incorrigible, backward, or even downright stupid or defective, when their only deficiency is an imbalance of the eye muscles, which causes them to see objects "out of focus." A brain cannot be bright if the books that are intended to feed it are blurs.

The eye is really a living camera. If the pictures reflected on its sensitized film (the retina) are not sharply defined, they are obscure, as with a camera. The corollary of which is that if a thing is not clearly seen it is not clearly comprehended. Furthermore, the constant physical effort of trying to see it clearly — in proper focus — uses up a tremendous amount of physical energy and vital nerve force.

If the globes of the eyes, the eyeballs, are shorter than they should be, the lens, which bends the light rays, and brings them together at a point immediately behind the

retina, will be out of focus. Then the constant straining of the muscles to properly adjust this focusing apparatus will soon develop abnormal conditions in these muscles and nerves. If the eyeball is not too flat, or too elongated, as the case may be, the muscles may overcome the defect, but always by means of unusual or fatiguing efforts.

With a camera, the focus is changed by contracting or lengthening the bellows, thus bringing the lens nearer, or carrying it farther away. With the human eye, however, no such change in focus is possible. The lens lies back of the iris (corresponding to the camera diaphragm), but it occupies a fixed position. Yet the eye must focus on near or distant objects with hardly a measurable lapse of time. It must be both telescope and microscope.

Now this lens, although we know it as "crystalline," is not rigid. It is more like firm gelatin, held in position by an elastic

capsule attached to the sides of the eyeball.

Joined to the surface of the eyeball, immediately back of the iris, is a ring of muscular tissue. When this contracts, it constricts the iris and relaxes the capsule inclosing the crystalline lens. The elastic lens "gives", becomes thicker, and assumes a more convex front surface. This is the mechanism of focusing upon near-by objects.

When, on the contrary, the vision is directed upon a distant object, the circular muscle relaxes, the iris expands, and the lens, released from normal muscular tension, exerts a constricting force upon the lens, thereby flattening it. This alters the refractive power of the lens for the proper focalization of light coming in almost parallel beams from an object at a distance.

In addition to abnormalities depending upon a too deep or a too flattened eyeball, the lens itself may be either too thin or too

thick, in which case the owner of the lens will be either "far sighted" or "near sighted." Also the lens may not be symmetrical. This causes astigmatism; in other words, the rays of light will focus improperly. Or the lens may grow hard and lose its elasticity. This is usually associated with advancing age. The elderly usually see distant objects without trouble, but see near-by objects dimly or not at all. Artificial lenses which change the focal point to where it should be, directly back of the retina, remedy this defect.

This effort to supply power to the nerves of fatigued eye muscles produces in many that twitching of the facial muscles and of the eyelids which frequently persists as a habit, even after the existing cause has been removed. The same effort produces the raising or depression of the eyebrows, blinking and winking of the lids, and the squinting and wrinkling so frequently found in those with weak eyes.

If the condition remains uncorrected, sooner or later inflammation of the mucous tissues surrounding the eyes manifests itself. These eye-strain inflammations should not be confused with congestions and purulent conditions of the eyes and lids, which are due to infections from various causes, and which are best treated by rest in a darkened room, hot boric acid compresses, or even by the installation of silver nitrate, chinosol, or some other astringent or antiseptic.

Another distressing condition due to eye-strain is headache. In all those headaches which occur regularly, becoming worse in the afternoon, the severity of which is increased by "close" work, and which are relieved by rest and holidays, eye trouble may be suspected.

Now, none would be so foolish as to hold an arm at right angles to the body for five minutes at a time. Yet the same individual will persist with a train-jiggled newspaper

or magazine for hours. He will sit bare-headed an entire forenoon, with the bright glint of the water spitefully slapping his eyes.

He will spend several evenings a week focusing upon some harrowing screen drama, which is causing his ocular muscles to perform more gymnastics in fifteen minutes than properly they should in a week. He will pucker up his lids and screw his eyes to a white stretch of beach, or to the wobbly road ahead of his machine, without the least idea or care for eye-consequences. He will sit facing the gleaming sun, and squint at the antics of twenty men and a little leather-covered sphere hours on end. He will read with glaring electric lights pouring full stream into his pupils, instead of on his page. And then he will wonder why his head aches, why he sometimes feels nauseated, and why he should be fatigued!

Naturally, all eye abuses are not accorded identical punishment. Strong, vigorous in-

dividuals may, by an effort, overcome the fatigue and reflex action from extra stimulation of the ciliary nerves and muscles. These sturdy ones may go for years, daily and never-endingly abusing their eyes, and remain as ignorant of the fact as was the chap Molière tells about who was astonished to find that he had been talking prose all his life.

Yet, a nervous schoolgirl, or a neurasthenic woman might, for much slighter lapses, suffer agonizing headaches, dyspepsia, loss of appetite, insomnia, and an aggravation of the million and one symptoms characteristic of nervous instability. In addition, conditions peculiar to her sex might even be induced by her optical sins.

On reflection, however, the reason for these disagreeable reflexes is clear. The centers of vision — in other words, those areas in the brain which control the function of sight — are closely connected with many other

most important centers. Therefore, any irritation of the eye centers is communicated to their sympathetic neighbors, and these immediately manifest their feelings in the matter by starting a disturbance on their own account.

Thus, strain and fatigue of the eye muscles is communicated to the centers governing the pneumogastric nerve, which has a very great deal of influence over the stomach's state of mind. So when, for instance, we look at a watery horizon over the side of a vessel that, by its pitching and tossing, is constantly changing our focus of vision, the eye centers convey this irritation to the stomach centers, and they do the rest.

Indeed, so intimate is the relation between eye-strain, headache, and stomach trouble that the eminent Doctor George M. Gould contends that every case of migraine, or sick headache, has its origin in eye-strain, and can be permanently cured only by correcting

this condition, even though it may require a severing (tenotony) of certain of the eye muscles to accomplish this end.

And Doctor Z. L. Baldwin, of Kalamazoo, Michigan, a most careful, even though enthusiastic observer, has reported the cure of scores of cases of such diverse symptomatology as cataract, squint eye, insomnia, neurasthenia, spasmodic asthma, hysteria and melancholia, epilepsy, paralysis, beginning atrophy of the optic nerve, high-blood tension, heart palpitation, exophthalmic goiter, rheumatism, chronic albuminuria, and diabetes, by the simple expedient of relieving tension of the eye muscles. This by the "repression" or "fogging" method — fitting the eyes with lenses which remove the strain.

He pertinently inquires: "If you relieve a lame leg with a cane, an injured arm with a sling, why not provide a similar relief for an overworked eye — more particularly as it is the only organ in the body which requires

more than one third of the total brain area to supply its energy?"

Many, however, particularly among the gentler and more beautiful sex, object to wearing glasses, on the ground that "it makes them look old." This is an effete survival of the beliefs of those distant ancestors who wore glasses only for the correction of "old sight." They knew nothing of astigmatism and imbalanced ocular muscles, and of their relation to distressing and even grave physical conditions.

But now it is obvious that properly adjusted glasses are among our best preservers of youthful appearance. For they relieve the prolonged eye-strain that produces wrinkles, and that marks the countenance with that strained, tired, drawn, cross, anxious, and prematurely old look.

Glasses, however, are not the only means of relieving eye trouble. Properly applied massage, through deep, yet gentle rotary

motion with the finger tips over and around the eyeball, by bringing an increased supply of blood to the parts, frequently aids vision and strengthens the eyes. "Rolling" the eyes, moving the eyeballs from side to side with the fingers, and manipulating them gently as though plucking them from their sockets, are helpful exercises. When the eyes feel fatigued from excessive application to "fine" work, kneading their outer "corners" develops the unused external muscles, and sometimes gives relief. But this is of real value only where the condition results from nerve-tire from too protracted use of the eyes.

If there are any displacements in the spinal column, especially of the seventh cervical, the first dorsal vertebræ, or in the atlas or axis, these displacements should be corrected by osteopathic measures. Manipulation of these centers and their nerve ganglia have cured squint eye, short and far

sightedness, and many inflammatory conditions of the mucous membranes. Wearing heavily dotted veils is a pernicious practice which has caused innumerable cases of eye-strain.

Bathing the eyes is a useful procedure. This may be done by immersing the face in a basin of salt water (a dessertspoonful to the quart), keeping the eyes open as long as the breath can be held, and repeating the process a dozen times or more.

In reading, sewing, or focusing on any "fine" work, the eyes should be raised from time to time, in order to give the ciliary muscles a chance to relax. In reading, the light should fall over the shoulder on the page, and not directly into the eyes. Care should be exercised while writing to see that the hand does not throw a shadow on the page, as this causes a peculiarly severe strain on the eyes. Reading while in a recumbent position is injurious, especially when con-

valescing from an illness, or when tired. Reading in vehicles and trains is also flirting with the oculist.

Never continue to strain the eyes after they show symptoms of distress or exhaustion. Even when the eyes are still capable of performing their functions, but lack normal acuteness, it is good eye insurance to close the eyelids occasionally and give the vision a temporary rest. Eliminate the "white lights" and "glares", and permit only the mellow and more natural yellow light to visit the retinas and optic nerves. The wearing of amber lenses in these lights is commendable, for they are to tired eyes what food, rest, and recreation are to tired bodies.

Observance of these rules and immediate attention to ocular troubles will indubitably make you more beautiful or majestic — and much younger looking. It will also serve to correct all the manifold correctable ills that result from eye-strain and ocular abuse.

CHAPTER XIII

Stamping out Typhoid

TYPHOID fever is no longer to be dreaded. Stagnant wells and the germ-infested, moss-covered bucket need possess no further terror for the summer vacationist. The succulent oyster, the insufficiently washed salad, and the contaminated raw fruit have been shorn of their power for evil. Even with the typhoid fly (and all flies are potentially typhoid flies) still wiping his feet on the food, and the polluted water supply the same corrupt fluid as of yore, typhoid is becoming less formidable. Gradually it is losing its grim place as the cause of one fifth of the world's mortality.

Typhoid germs are at last on the defensive; for we have found that boiling improves them. It enhances their value to such an extent that when injected into the human system they render the premises untenantable to their fellows. Within a few years, if the public can be educated to appreciate the utility of preventive inoculation against typhoid, this epidemic disease will be as rare as typhus, plague, or cholera.

When we consider that three hundred and fifty thousand suffer from typhoid every year in the United States, and that thirty-five thousand die, also that it leaves other thousands permanently injured from damage to heart, liver, kidneys, gall bladder, and nervous system, the enormous significance of its prevention can be better understood.

And, strangely enough, all our knowledge of the subject has been gained through observation upon soldiers, — by attempting to keep fighting men alive until they could

be killed by the legitimate method of civilized warfare. Now, a soldier is efficient only so long as he is healthy. When he becomes ill, he decreases the fighting force, not only through his own incapacity, but because he requires the services of others, who potentially might be fighters, to care for him. Of course the business of a soldier is to fight and be killed, possibly; but it isn't his business to be killed before he has a chance to fight. And typhoid kills more soldiers than all the war machinery combined.

Because of this, Major Russell, M.D., U.S.A., after studying the result of preventive typhoid inoculation in foreign armies, introduced it among our troops. As a consequence, within the last five years the typhoid rate has fallen to less than one tenth. In 1912 there were only fifteen cases among fifty-seven thousand troops. More striking still, among the twelve thousand six

hundred and forty-four vaccinated men on the Mexican border, only one case of typhoid developed, and no deaths; while in the neighboring city of Galveston the disease was rife. During the same period there occurred in the remainder of the army four hundred and eighteen cases, with thirty-two deaths. The rate to the thousand among the vaccinated was .39, while among the unvaccinated it was almost ten times as high.

Compare these results with the grisly records of the Spanish War, when, among ten thousand five hundred unvaccinated troops at Jacksonville, Florida, who secured their water from a much purer source than the Texas troops, — *viz.*, from artesian wells, — there were twenty-nine hundred and ninety cases of typhoid and two hundred and forty-eight deaths!

This conquest of typhoid may well be considered one of the most brilliant achievements in the annals of medical progress, and

it has come about within the memory of mere youths. Like so many other great medical discoveries, it bears the stamp of "Made in Germany"; at least the painstaking Germans gave it its initial impulse.

In 1887 four physicians of the Kaiser's realm — Frankel, Simmonds, Baumer, and Pieper — demonstrated that by injecting small doses of virulent, living typhoid germs into animals, resistance to the fever was increased. Frankel and Simmonds repeatedly injected small nonlethal doses into rabbits, then treated the rodents to a quantity that would ordinarily have induced a fatal attack, but caused only temporary discomfort. Baumer and Pieper performed a like kind office for a number of mice, with similar results.

This form of immunization with active, nonweakened organisms was of course too dangerous to be extended to man. But about the same time Professor Chantemesse,

of the Academy of Medicine in Paris, and Doctor Widal, originator of the famous "Widal reaction", conceived the idea of sterilizing the germs by subjecting them, in a water bath, to a temperature of one hundred and twenty-eight to one hundred and forty degrees Fahrenheit. The bugs have little or none of the salamander characteristics, — one point in our favor, — and they succumbed to heat very readily.

Three or four injections of this sterile solution conferred immunity against typhoid fever among animals, and thus it was perfectly safe to use on the human animal.

So, in 1896, Pfeiffer and Kolle immunized two men with the vaccine, and investigated the changes in the blood with characteristic German thoroughness.

A few weeks later Sir A. E. Wright, of the medical corps of the British army, began a series of studies on typhoid immunity by inoculation with killed germs, and the follow-

ing year published the results of his experiences with eighteen cases, which results were so conclusive and practical that the process was thought worthy of adoption in the army.

And so it was that prophylactic, or preventive, inoculation was introduced into the British army in India, and Tommy Atkins reaped considerable benefit thereby. Wright used cultures in broth which had been incubated for three weeks, and then killed by heating to one hundred and forty degrees Fahrenheit for an hour. The size of the dose was determined by animal experimentation; the quantity necessary to kill a small guinea pig being used as the immunizing dose for a man. Each lot was "standardized" in this manner.

When typhoid became epidemic during the Boer War, Wright had a chance to try out the treatment on a large scale; a gigantic scale, for the army developed thirty-one

thousand cases of typhoid, with almost six thousand deaths. This tremendous loss of efficiently drilled soldiers was a serious handicap to the English. They might have crushed the burghers and taken their territory from them much sooner, had not the plague ravaged their ranks so unmercifully.

So, while the effects on the whole were promising, the net results were rather unsatisfactory. Also the reaction was very severe; and while young and vigorous soldiers might be able to recover from it in a short time the treatment would not have made much of a hit with civilians. Doctor Wright, however, claimed that the incidence of the disease was diminished one half, and the mortality even more. However, the practice of inoculation was officially discontinued after England "steam-rolled" the recalcitrant Boers.

Then Sir William B. Leishman, associated with Doctor Wright in the royal Army

Medical Corps, by a series of brilliant experiments demonstrated that the defects in the preventive treatment were caused by overheating the solution in the laboratory. This produced destructive changes in the "end" products (the germ toxins) upon which depended the stimulating powers of the vaccine (that element which creates increased interest, appetite, and appreciation among the body cells). So Professor Leishman perfected the technic or preparation of the "soup", and now there is no difficulty in securing uniformly good and efficient vaccine.

Following the Boer War the next extensive use of antityphoid vaccine was in the German Colonial Army, when, from 1904 to 1907, the Germans chased the Hereros over a considerable part of the landscape of Southwest Africa. As is customary among the Germans, they lugged the famous old "Ark of the Covenant" (*es ist verboten*) around with them; and, although the inter-

diction not to do this, that, or the other thing obtruded itself like Banquo's ghost, and would not down, the typhoid rate went up.

They totaled two hundred and twenty-six cases in 1904. Then Professor Robert Koch, one of the ablest scientists that ever lived, advised preventive inoculations. The typhoid rate immediately dropped, and in 1907 the number of cases reported was forty-three.

Then in Asia, Africa, India, and other English possessions, in Japan, and finally in the United States, many hundreds of thousands of men underwent injection. They proved themselves infinitely less susceptible to typhoid than similar numbers of men who were exposed to identical conditions but refused to avail themselves of the protection afforded by the vaccine. These latter deemed it dangerous, as some hold vaccination for smallpox to be. Typhoid

inoculation propagandists have found it difficult to overcome prejudice for this reason; but this prejudice is entirely unfounded.

Accidents rarely follow the injection of dead germs and their products. This constitutes an entirely different procedure from introducing living smallpox organisms of unknown potentiality into the system, there possibly to create such havoc and destruction among the white corpuscles that the ranks of these little defenders are weakened, and their courage reduced to the lowest ebb. But with typhoid inoculation there are absolutely no such dangers.

The immunity conferred by inoculation is supposed to last about a year. The reaction from the injection is usually very slight. The treatment is divided into three injections, — the first, a dose of five hundred million bacteria in one cubic centimeter (about a teaspoonful) of normal salt solution (teaspoonful of salt to the pint). This is

given about four in the afternoon, because the reaction, if it be apparent at all, comes on about bedtime, and is practically over by morning. Occasionally nausea, vomiting, headache, prostration, and some elevation in temperature develop; but these are the rare exceptions. Generally there is a little local pain at the site of the injection, a slight headache, and a feeling of drowsiness; also a red, tender area develops several hours later around the point of inoculation. But by next morning the subject is usually all right, both as to appetite and to general well being.

The men are cautioned not to drink alcoholic liquors when undergoing treatment, as this precipitates every painful and discomforting symptom that the combination of the two bug juices can conjure up. The second and third doses are twice the size of the first, — one thousand million bacilli in one cubic centimeter of salt water; given

ten and twenty days later. The reactions following these later inoculations are commonly much milder than that of the initial vaccination; sometimes hardly appreciable.

It is interesting to note the method by which the quantity of killed bacteria is estimated in these injections. Sir A. E. Wright hit upon the ingenious plan of mixing equal parts of normal human blood and the bouillon or emulsion containing the germs to be counted. This was thoroughly shaken together, and small drops of the mixture spread upon glass slides, and stained so as to make the germs visible. Then counts of both the red cells and the bacteria were made in a number of microscopic fields divided into millimeter spaces. A little antiseptic is incorporated, in order to preserve the mixture. It is then sealed in glass ampulæ over the heat of a blast lamp. Each container is labeled with the bacterial content, and dated three months ahead of the

time of its preparation, after which it is no longer considered fit for use.

The Board of Health of New York City recently issued a circular indorsing the method of preventing typhoid by inoculation, and holds itself ready to perform immunizations on request.

Militiamen in all parts of the country are taking up inoculation with the same success as follows its use in the army. Lately a great Canadian railway ordered typhoid vaccination among all its one hundred and twenty-five thousand employees, from president to gate tender. Industrial enterprises depending upon the health and highest efficiency of their men for their economic success are also looking into the advantages of antityphoid inoculation, and are urging it consistently.

One of the latest and most striking reports comes from Professor Chantemesse, who, it will be remembered, was among the first to

direct attention to typhoid inoculation. On April 5, 1912, the French Minister for the Navy authorized the voluntary vaccination of sailors and laborers in the various ports of France with vaccine prepared under the direction of Chantemesse. The greater part of this maritime population of sixty-seven thousand eight hundred and forty individuals were doubting Thomases. They waited — Micawberlike — for something to turn up. It did. By the end of December there were five hundred and forty-two cases of fever among them. On the other hand, among thirty-one hundred subjects who were vaccinated, living identically the same lives as the nonvaccinated, not a single case appeared. The same benefit followed inoculation in the army which was so busy carrying the light of civilization into the dark and turbid corners of Algeria and Morocco.

The latest to avail themselves of the preventive are the nurses and orderlies in our

large hospitals, who are constantly exposed to the contagion of typhoid. Inoculations have shown that the morbidity among the unvaccinated is nine times greater than among the vaccinated. And no untoward effects have arisen from over five thousand injections.

It is also claimed that the course and severity of an attack of typhoid may be materially shortened, sometimes even aborted, by vaccination. An early diagnosis must be established — and here the value of the "Widal test" is incomparable. Every one has heard of this; but few know how it is done. A little blood or serum, taken from the fingertip or the lobe of the ear, is added to a bouillon culture, either already containing typhoid bacilli, or to which are immediately added living bacteria. In two or three hours, if in the former case, the turbid fluid is clarified, and a clumpy sediment composed of accumulated bacteria is formed. If the ba-

cilli are added, as in the second instance, the tube is placed in an incubator, and within fifteen hours the reaction, if positive, will be manifested, the germs clumping at the bottom, the rest of the fluid remaining quite clear. Thereby we gain several days of valuable time for bombarding the bacilli. In other words, we don't wait to swat the bug: we kill his grandmother.

So, in the light of all experience with anti-typhoid vaccination, it will be well for everybody — especially those contemplating a visit to the country, where the deadly trio of food, flies, and fingers may become operative in introducing belligerent bacilli into the system — to "treat" their phagocytes: give them a few billion boiled germs as appetizers. Have your physician put the family in an immune condition by using these dead germs as life savers.

CHAPTER XIV

Children's Diseases

OF the many fallacies more or less universally believed to be truths, one of the most senseless and absurd is the idea that measles is necessary to the well-being of a child, and that the sooner he gets it the sooner he'll get rid of the probability of having it again.

This is about on a par with the answer of a pupil in the biology class, who said a lobster was a red animal that walked backward. The genial professor agreed that this statement was correct, with the trifling exceptions that a lobster was not an animal, but a shellfish; that it wasn't red until it was boiled; and that it did not walk backward, but sidewise.

Equally correct are the traditional ideas about measles and nearly all those more or less dangerous contagious diseases classed as "children's diseases." First, they are not necessary; next, they add nothing to the well-being of the child; and thirdly, they invariably leave the system worse off than it was before they came.

Of course, as in every other popular belief, there is a slight foundation of fact here. Admitting, for the sake of argument, that these infections "have to be had", it is better to have them early. When measles, scarlet fever, whooping cough, mumps, chickenpox, and other children's diseases fasten themselves upon adults, they run an extraordinarily severe and ravaging course. The foundation for the traditional belief was laid in the days before the discovery of the germ origin of disease, when it was thought that these illnesses were merely Nature's kindly way of getting rid of "pec-

cant humors" in the blood; for if it were true, which it is not, that everyone has just about so much "humor" that he has to get rid of sooner or later, it would be good reasoning to get it out with the least effort and danger, — that is, in the age of childhood.

But we know, although we have not yet seen the "bugs", that measles and many other children's diseases are caused by germs of some kind. Of this we are reasonably certain from the way the diseases "act." Their highly contagious or infectious nature, their uniform clinical aspects, the exactness of time with which they run certain courses, corresponding with what we know of the manifestations of germ-caused diseases (such as the fact that the periodic chills of malaria are caused by the wholesale birth of new colonies of parasites), indicate that children's diseases are microbic in origin.

We have not yet found these bacilli, be-

cause they are so infinitesimal that the finest porcelain does not filter them out of a solution, also because they have not yet been communicated to animals. If we can only find some bird or beast that is subject to these diseases, or that will "take" them, as we found apes and monkeys susceptible to smallpox, infantile paralysis, and constitutional blood disease, it will not be long before we discover the germs that cause the conditions.

Then we shall be able to destroy the bugs with their own "end products", or the dead bodies of their fellows, killed by boiling. With a specific antidote or antitoxin to combat the germs and their effects, we shall be in a much better position to speak disparagingly of them.

In the meantime our watchword should be "prevention."

If children escape having any children's diseases, they are gainers in general health

by just so much. It may be that years will have been added to their lives, or an existence of chronic invalidism avoided, by side-stepping these maladies of youth. This applies to all children's diseases, without exception.

Get these points clearly in mind. No disease of childhood, or of any other "hood", is desirable or necessary. Many, if not all, of them are serious, and frequently disastrous. For instance, measles and the diseases that follow in its train cause, according to the vital statistics of the latest census, more than thirteen thousand deaths annually in the United States alone, a mortality twice as great as from scarlet fever, and almost three times as heavy as from the much dreaded appendicitis.

True, all these deaths are not directly due to measles, but to its relapses and complications. Many are caused by permitting the child to go outdoors too soon; which

means, naturally, either a chilling of the weakened and irritated bronchial mucous membrane, or an infection from grippe, bronchitis, or pneumonia. But the predisposing cause is measles. Not seldom the seed is shown for a visitation of tuberculosis; for this is just the opportunity it is seeking, this chance to catch the system in a run-down condition, when it is unable to fight him off.

Among the thousand and one things that the young mother should be taught is the art of counting the pulse and using a temperature thermometer. She should have a definite knowledge as to what constitutes an average pulse rate and temperature, and should feel it her duty to call in an expert when these deviate, by more than twenty pulse beats or two degrees of temperature, from that average. She would save herself much anxiety from needless worry about imaginary ailments, and would be able, early

in the course of what might turn out to be something grave, to get competent help, while there is yet time to mitigate the severity of the attack, perhaps kill the incipient disease entirely.

She should learn, as part of her business of being a mother, to recognize the symptoms of the common disorders, and be able to minister to their victims sensibly and with discrimination, or call some one who can. She should have at least the rudiments of a nurse's training, so as to be competent to carry out intelligently the instructions of the medical attendant, which comparatively few are now able to do. In point of fact, the average mother, who should be a help in the sickroom, is often a hindrance.

If all families could afford to employ a trained nurse for emergencies, this knowledge of health might not be quite so essential; but, unfortunately, comparatively few among the hundreds of thousands of families

in the United States or anywhere else, can afford the services of a skilled nurse.

So, first, the problem is how to prevent measles; for by all means the best immunization is prevention. When measles is prevalent in a community, every child with a cough may be properly suspected of harboring something communicable, and should not be permitted to play with other children. It is not only very stupid, but it shows a criminal indifference to the rights of other people's children, for a mother to permit a child suffering from a mild attack of measles, or recovering from an attack, to afflict others.

One invariable symptom of measles is the presence of "Koplik's spots", so called after the doctor who first pointed them out. These are small, white-tipped, reddish spots found on the mucous membrane inside the cheeks and lips, and are never associated with anything except measles.

Measles could be almost entirely avoided

if every mother would learn its character, and follow common-sense methods of preventing it. To this end, children with measles, or without them, for that matter, should be taught always to hold a handkerchief in front of the face while coughing, and to be very careful not to sneeze or cough in such a manner as to distribute any mucus over the surrounding neighborhood.

Also everything that comes in contact with a patient should be sterilized before being again allowed to circulate through the household. This applies particularly to all dishes, napkins, bed clothes, and towels, which are readily sterilized by boiling for twenty minutes.

While every case of measles should be under the direct care of a physician, to guard against grave complications, yet a certain familiarity that breeds contempt has resulted in its usually being considered a "house-treated" disease. Therefore it might

be pertinent to suggest a few simple measures that may prove helpful.

First, and most important, if we are ever to stamp out this absolutely preventable disease, the little patient should be isolated, and thereby prevented from infecting any other child. Remember, all these maladies can spread in only one way, — by being communicated from one person to another.

Next, the child should be placed in a cold, darkened, but well-ventilated room, the bed being protected from drafts by screens. The bed clothes should be light: otherwise the youngster is likely to get overheated, and kick off the covers. A chill contracted in this way may result in pneumonia.

When the cough or the laryngeal irritation is severe, much relief is experienced by keeping the room moistened with steam, or the evaporation from a pan of water on the radiator or stove.

In no circumstances should the child be

permitted to run about the house. The bed is the proper and only place for a sick person, particularly one ill with a fever.

Plenty of water or weak lemonade should be freely given, and all avenues of elimination gently stimulated.

The patient should be kept in bed until the temperature has been normal — around ninety-eight degrees — for a week; then he should be confined to the house for at least one week longer.

For a time great care should be taken that too violent exercise be not indulged in, because there is frequently a considerable weakening of the heart muscle following fevers. Consequently, the heart must be given time to regain its normal tone before much strain is again put upon it by the violent exigencies of play.

The eyes may be bathed with a little warm normal salt solution (a teaspoonful of table salt to the pint of water). A little vaseline

or olive oil will prevent the lids from "gluing together" during the night. Indeed, care of the eyes is very essential, as many cases of chronic eye trouble result from an attack of measles.

The comfort of the patient may be greatly enhanced by sponging the body with tepid water and alcohol, especially when the fever is high. Sometimes cloths wrung out of ice water applied to the head are of decided advantage.

Speaking of baths recalls that it was the common custom until a dozen years ago — is yet, in some very backward places — for mothers to rejoice and wax exceeding glad when little Brother or Sister developed, during the course of measles, an "extra good" rash; this, on the basis that the children were "getting rid of a lot of humor", and also that it was "better out than in."

The proposal to give the little sufferers relief and comfort, and at the same time re-

duce their fever by "tubbing" them, or applying wet packs, would be met by an incredulous, "Why, you don't want to drive the rash in, do you?" This "driving in" process was generally held to result in convulsions, or other serious consequences. Now we know that the rash outside simply indicates approximately what is going on inside. The more rash, the more severe the disease.

The food should be extremely light. Nutritious broths, soft-boiled eggs, milk, jellies, junkets, toast, and those dishes which experience has proved agree with the particular child, are best. Oatmeal and sweetened mushes, because of their tendency to cause fermentation, and thereby increase the fever, should be left until such time as the patient is strong enough to withstand their harmful influence. It is also wise to remember that tissue cannot be built up nor waste repaired by starchy gruels; for man

does not live by starch alone. Starch may stick paper; but it does not "stick to the ribs."

Pet animals should be carefully excluded from the room of a measles patient. Children have a habit of fondling and nuzzling cats and dogs, and, while perhaps it has never been definitely proved that pets have conveyed measles, all opportunities and means for so doing are certainly present in them and their furry coats.

While it is generally held that one visitation of measles confers immunity from succeeding attacks, there are numerous cases on record of second, or even third, attacks.

It may surprise many to know that measles, occurring among uncivilized peoples, is a dreadfully fatal disease, whole tribes being literally wiped out of existence by its ravages. When it was first introduced into the Fiji Islands, and had a chance to breed in bodies that had not undergone a certain

degree of immunization to it, such as exists in most civilized countries, the natives died by thousands. Twenty thousand perished in less than a year; in fact, the epidemic did not run itself out until every person on the islands had either died, or had the disease and recovered from it.

It is well known that when an adult gets the measles he "gets it good." And he can be about as sick with an attack of it as with almost anything he could pick out for experimental purposes. When it afflicts an army where sanitary precautions are usually conspicuous by their absence, it claims a heavy toll. For instance, some years ago, in the war between Brazil and Paraguay, it swept away one third of the Paraguayan army in less than three months; and during our Civil War there were more than thirty-eight thousand cases in the Confederate army alone, with a total of nineteen thousand deaths.

In the United States, at the present time, the annual mortality from measles is about thirty in one hundred thousand; not large, perhaps, considering the total number of cases, but just thirty in one hundred thousand more than there should be.

For measles has no more reason for existence than has plague or typhus. These diseases have been practically stamped out on this hemisphere. This we accomplished by investigating their causes and methods, and then directing treatment accordingly. If we had thirteen thousand deaths in a year from plague, the whole country would rise in a frenzy of fear and determination to drive out this ferocious foe. But little, sniffly, piffling measles, and its grim sequelæ of tuberculosis, and eye, ear, and kidney troubles, attracts little or no attention. When the public is educated to realize the dangers, the foolish waste of life, and the economic loss to the country, because of the

tremendous aggregate amount of illness, and compulsory absence from school attendance, a definite effort will be made to wipe measles off the earth.

Scarlet fever is one of the children's diseases that are justly dreaded, and it is usually accorded respectful consideration. Too little emphasis is placed, however, upon the danger of developing most serious conditions from lack of care during convalescence. If all children recovering from scarlet fever were kept in bed for a full week after the fever had entirely subsided, and fed for two weeks longer on an exclusively liquid diet, it would do much to prevent the development of those grave after results which sometimes cause permanent disease, or disability, or even death.

The next most serious ailment that afflicts children is whooping cough. The chief, and sometimes the only, treatment for this disease — except perhaps in the case of in-

fants, in whom its gravity is generally recognized — is one of neglect and contempt. And yet so severe at times are the paroxysms of coughing that frequently rupture of the small blood vessels of the eyes, lungs, surface of the skin, or even the brain may result. Also the heart may occasionally become distended from overstraining, and may remain so.

In babies under one year the mortality may be as high as twenty-five per cent. After that age it decreases, as one might say, almost in inverse ratio to the increase in the child's age; until finally it becomes a scoffing, a byword, or a very unpleasant joke, interrupted from time to time by ringing whoops.

I sat opposite a little family party consisting of a mother, a nursemaid, and three children in a railroad train one afternoon last summer. A little red-eyed boy of eight or thereabouts occupied half of the seat;

that is, he occupied it by standing with muddy feet upon the cushions. He faced a little girl and the nursemaid. The latter held an infant in her arms. Sharing the seat with the boy was a sedate and ladylike child of five.

I had never before heard such paroxysms of whooping cough as originated in that boy. His resonant laryngeal ring could be readily heard in the next car. The poor little chap whooped and coughed and spluttered impartially over his infant relative and his two little sisters, none of whom showed any signs of having had the disease.

The mother, who occupied a coign of vantage in the seat back of the nursemaid, kept turning idly the leaves of a fashion magazine, except as she was aroused at intervals by some exceptionally turbulent outburst from her son. Then she would look up, and smile a fat-faced smile of satisfaction to learn that her hopeful had not yet choked to death.

Such ignorance as this prosperous looking woman exhibited was enough to turn one's blood cold. She seemed not to have the slightest conception of the tremendous contagiousness of whooping cough, or that the disease in young children or infants might be a very grave, not to say fatal, ailment.

I felt like paraphrasing Madam Roland with "O Motherhood, what crimes are committed in thy name!" Instead I made an ass of myself by apologetically telling the lady that her whooping child was a very serious menace to her other three, and that, in the interest of these three, the little boy should be headed in the right direction, and provided with a handkerchief to whoop in. For this altruistic act I was thanked with a haughty stare and an intimation that if I had any business to mind, I had better mind it, and not be insulting decent, respectable people — busily engaged in disseminating whooping cough in their own decent, respectable way.

Treating every case as though it were a most serious condition, — which it is, — and excusing the children from all care and exertion until they are completely cured, would prevent three fourths of the ten thousand deaths from whooping cough that annually shame the United States.

Mumps is another highly contagious, but — among civilized races — not very fatal disease. Mothers should learn to recognize its symptoms, as it is extremely common and but rarely under the complete care of a medical man.

Mumps usually makes its appearance as a slight cold, with perhaps a little cough. There is then a period of depression, and an elevation in temperature, with possibly headache, and some vomiting.

The child complains of pain and a feeling of tightness at the angle of the jaws right below the hinge. This is followed by a gradual enlargement of one or both glands

under the jaw, running up to the back of the ear. This swelling has a tendency to make a caricature of a raving beauty, and a freak of an ordinary individual, particularly if he be a male adult. There are few funnier sights than a full-grown, angry man with the mumps. He is so swollen and puffed out that his ears protrude in most grotesque fashion, and involuntarily you catch yourself watching for them to "wiggle." Ringing in the ears and earache are quite common. The attack usually lasts about a week, after which the swelling gradually subsides, and by the tenth or twelfth day has completely disappeared.

The same septic symptoms that follow scarlet fever, and to some extent measles, are also occasionally seen in mumps. Middle-ear trouble and deafness, chronic swollen joints, kidney inflammation, and occasionally that grave condition known as meningitis (inflammation of the coverings

of the brain) may leave the victim partly paralyzed for life, or speechless, or with a defective intellect, or even totally blind.

So do not make light of mumps. In fact, it is good policy, and shows excellent sense, not to despise any physical ailment, no matter how humble it may appear to be.

Chicken pox is another disease of childhood that is regarded more as a joke than a disease. Frequently the victim is not ill enough to remain in bed, unless by due process of force. Yet at times this disorder flares up with all the virulence of smallpox, for which it has often been mistaken.

Not so distinctly traceable, but none the less serious in the long run, are the conditions following these contagious, preventable diseases. Usually there is a loss of vigor, absence of appetite, or perhaps digestive disturbance, with chronic depression and a decrease in the powers of assimilation and metabolism. These are particularly marked

among the children of the poor, who cannot afford to purchase the highly nutritious and appetizingly cooked foods so necessary if the little patients are fully to recover.

We should learn to treat all diseases with respect for the active or potential evil inherent in them. The commoner the ailments, the more watchfully they should be regarded.

Remember that no diseases are necessary or desirable; that any of them, even the most trifling, may become dangerous under unfavorable conditions. Though children's diseases are familiar, let us not make the mistake of treating them with contempt. To do so is to exhibit a choice brand of very costly ignorance.

CHAPTER XV

Where Nature Bungles

SINCE her fall upon the treacherous ice, the girl's knee had grown absolutely immobile. It had ankylosed into a solid length, completely obliterating the function of the joint. And now, instead of swinging from the hips with careless, easy stride, she stilted along with the stiff lack of grace of the cripple she was.

The inflammatory process had completely destroyed the secreting power of those transparent membranes that surround the joints (the synovial sacs), and no longer did they pour out their lubricant to "oil the joint." Instead, the surfaces adhered, the bony cells, by that cruel principle known as

exostosis, ramified into the joint, joined their fellows on the other side of the knee, and finally solidified the member into one rigid mass of bone.

Fräulein Rosa, with the arrogance of youth, had always been proud of her free, swinging step, her erect carriage, and the dominating confidence that radiated from her perfect poise and her aggressive good health. But their old family physician had declared that no surgery or medicine would ever avail to restore the use of her knee. And the world, which had always seemed so full of glad things, now lowered upon her.

Yet something deep down in her soul refused to accept crippledom. Some part of that hope that springs eternal in the human breast called out of the darkness, and led her to the foot of the hill of blind faith, in — she knew not what.

And then, one glorious day, the doctor told her in his homely, hearty way of a great

discovery that was shaking the foundations of the scientific world.

"Yes, it is possible to get you a new knee in place of your useless member. Professor Erich Lexer and others among the world's great surgeons have succeeded in transplanting and ingrafting portions of bone from healthy individuals, killed or crippled by accident, into tubercular or injured structures, and the bones grow in their new relation, as scions would on a sound tree. The operation promises success. Of course you realize that if the strange bones fail to unite you must lose your leg. If decay of the bone (necrosis) supervenes, we must amputate. But it is worth the hazard."

To the girl it was worth any chance to have the freedom of movement she had once known. There was no risk she was not willing to take as long as the good doctor thought it was worth while. He warned her that she would have to endure much suffer-

ing, that she would have to be infinitely patient, and she only smiled. All she could think of was being strong and well and free. And when the doctor explained to her what the wonderful discovery was, and its significance, she listened, because she knew it gave him pleasure to explain, and not because she wanted to hear. Yet it should have thrilled her, especially:

"The life principle, the biological soul, resident in every minutest cell of the body, has been found to be immortal. Could healthy tissues, cartilage, or even organs, be transplanted from bodies that no longer required their service into living structures, to bodies that could nourish them, they might grow in their new relation, and thoroughly adapt themselves to their change of owners." A great deal more the garrulous doctor told her: Of the possibility of passing certain groups of cells down from an old man to a child, and from that child, when he grew up,

to another child; and so on, without end, thereby perpetuating life as long as climatic and other conditions permitted the human organism to exist on this planet.

It was difficult for her to comprehend his reasoning, it was all so strange, so unusual. But her mind followed laboriously the fleetness of her soul, in grasping some measure of what she had intuitively known all along.

The doctor would take her to Professor Lexer himself. And so, with a bashful diffidence that her kindly old friend helped out as best he could, she presented herself before Herr Professor Lexer, director of the Royal Surgical University Clinic of Königsberg, whose shrewd German eyes beamed with friendly good humor and paternal encouragement.

Yes, he thought the limb could be restored. It was difficult; but with patience and courage it might be done. A veteran of the Franco-Prussian War had a perfectly good

knee joint on a leg for which he had no further use. He must inevitably lose it because of gangrene of the foot setting in. But the sound joint might be so adjusted that the eighteen-year-old *mädchen* could benefit from it in the years to come, when perhaps she might have a little household of her own to preside over in the quiet village on the banks of the Rhine.

So Rosa entered the clinic. And at last came the day when the attempt was to be made. Erick Lexer opened up a flap of the skin until the joint was laid bare. With the consummate skill of a master craftsman he dissected the kneecap loose from its rigid binding. Then he sawed the upper and lower ends of the bones where they met, removing a length of bone and joint as wide as three fingers.

After which he turned to the operating table at his side, where the old soldier lay dreaming under the influence of the blessed fumes

that bring merciful unconsciousness to those who are to go down into the darkness of great pain, to those children of men who are to be repaired by the wizard carpentry of the surgeon.

His assistant had stripped the bone of the aged sleeper, and everything was ready. The doctor measured as much of the bone and joint as would exactly replace what he had removed from Rosa's limb. The part was carefully fitted; but the bones were found to be too large. Nothing daunted, the skilful operator trimmed them down to the size of the feminine bones, inserted them, and wired them fast. All that remained to be done was to replace the knee-cap, close up the wound, and permit the nerves and blood vessels to reunite, through Nature's benign grace. Then a plaster cast, running from toes to hip, was placed in position.

After allowing seven weeks for the healthy

blood to nourish, build, and knit together the parts, the cast was removed. Every day the knee was flexed, and soon it was found that the joint could be bent, without pain or any distress, until the leg was doubled upon itself.

And finally came that glorious day when she walked — with the aid of a crutch — about the hospital wards, telling everybody how glad she was to be again made whole. The crutch was soon discarded for a cane, and then came that never-to-be-forgotten morning when Rosa, leaning on the arm of the good Herr Doctor, left the hospital and went home, proud and happy that she need never be abashed or chagrined because she was not as other women.

This is but one of numberless examples of the masterful interference practised by surgery, — the seeing part of the healing art. In medicine "Help Nature by letting her alone" may be a splendid motto to blazon

on the front door; but in surgery it is a policy of masterly inactivity that leads across lots to the cemetery, or the Home for the Crippled.

If disease attacks the spinal vertebræ, old Mother Cause and Effect twists the poor sufferer into permanent deformity. The orthopedist improves upon this bungling crudity by adjusting a steel frame in such a manner that all weight is taken off the afflicted parts, and friction is eliminated. This gives the healing elements of the body a real chance.

It might be stated that five years are usually required to effect a complete cure; but in the meantime the child can attend school, move about, and enjoy a certain degree of freedom. With adults frequently a portion of bone from a healthy limb is split off and bound, as a splint, to the diseased section, so that the bone is held immobile. By this plan the period of healing is reduced to a year, or less.

Or, better still, the "over-correction" method introduced by Doctor Abbott of Portland, Maine, is resorted to. This consists in bending the body in the opposite direction to the curvature, and retaining this position, by incasement for a time in a plaster cast. When the cast is removed it will be found that the spine has become perfectly aligned.

Congenital hip dislocation, such as afflicted Lolita Armour, Nature makes not even the slightest effort to correct. In this condition the rounded head of the long bone of the thigh, the femur, does not properly rotate in the socket of the hip bone, — that earliest of ball-bearing devices, — and furthermore, unless aided by surgery, it never will.

But the herculean Professor Lorenz comes to this country, and with a giant's strength, combined with the sensitive delicacy of a woman's touch, he rotates the ball of bone into the cup intended for it. Then rigid

casts hold it in place until the ligaments and muscles are trained to maintain it there.

True, the "reduction" does not always remain "put", as was the case with Lolita Armour; but in explanation of this we must remember that with her the condition had persisted for many years. The muscles and ligaments had become accommodated to their malplaced position, they had lost their elasticity. Had the operation been made several years earlier, say at the age of three or four, the results would have been much more satisfactory.

Many other subjects of this "bloodless" surgery remain permanently cured.

And speaking of "bloodless" surgery recalls our friends the osteopaths, who were first to practise this system. Subluxation of the sacro-iliac joint (partial dislocation of the hip) was successfully treated by osteopaths years before our surgeons adopted this method of reducing the luxation. And this

is but one of many osteopathic operations that we are appropriating.

Physicians and surgeons all over the world are realizing the importance of the normal alignment of spinal vertebræ and that the relief of "pinched" nerves, due to "tipping" of the spinous processes, is frequently followed by remarkable results.

In a few years the science of osteopathy will be recognized as a branch of medicine, and chairs of adjustment therapeutics incorporated as part of the curricula of our medical colleges.

The good will be culled out and perpetuated. The foolish attempts to cure specific diseases, and those arising from microbic infection, will be abandoned. Osteopathy has an important place; but it can't do everything.

Sometimes it is found that the ball on the head of the femur hasn't "bulge" enough. It is too flat to furnish an adequate "shelf"

for the hip socket. Then a piece is sawed from its outer edge, and the fragment turned inward and united with the flattened surface, and the ball is built out to normal proportions.

When a malignant growth proceeds calmly to destroy a bone, advantage is now taken of the fact that a section of clean bone freshly sawed can be ingrafted, — as we have seen Professor Lexer do with the ankylosed knee joint, — and perfect union follows.

It happened recently in New York that a section of sound bone from a patient's leg was removed and set into a space in the arm, from which the tubercular bone had been excised. The bone cells ramified together, forming a thoroughly solid structure, while the cells from the cut ends of the leg bone granulated, finally uniting under the protection of the bone covering (periosteum), which had been dissected loose, laid back, and then restored to its former position. The subject

of this unique graft now has a thoroughly good arm and perfect legs.

Even with such seemingly intractable conditions as "club-foot", — acquired from muscular paralysis and a failure to counteract the "pull" of the sound muscles and the drop incident to the weight of the foot, — bone ingrafting is rapidly replacing the older methods of forcible stretching of the muscles and ligaments, practised from time immemorial, to correct one of Nature's outrageous bungles. An incision is made, the deformed ankle bone removed, a straight one inserted, and the feet restored to proper adjustment.

If Hippocrates could come back and see the wonders that some of his brain children are accomplishing as part of their everyday practice he would be lost in amazement. But he was a "practical man", not disposed to put too much confidence in anything excepting results. His apparatus for re-

ducing wrist and shoulder dislocations and straightening club feet resembles very closely those which are still in use.

Had the old-time surgeons access to the benefits of anatomical study, other than merely superficial observation, or what they could learn from the bodies of animals, they would undoubtedly have achieved even more remarkable results. For we must not forget that dissection, the only absolute method of determining pathological conditions, was forbidden up to within very recent times.

While the warlike peoples of the world had no conscientious scruples against killing, — in fact, regarded it as one of the few honorable avocations in which gentlemen might indulge without loss of dignity, — they accorded great respect to a corpse.

Partly on the principle of "do unto others as you would be done by," — for when their turn came, and they were spitted upon the foeman's steel, — they ex-

pected and secured conventional disposition of their remains.

It is almost unbelievable that, owing to this antidissection prejudice, there prevailed the densest ignorance of anatomy, even as late as the middle of the seventeenth century.

A dispute arose on one occasion between two grave professors and the court physician of the Margrave of Baden, regarding the location of the heart. The council had decided to put a plaster over the heart; but they couldn't agree just where to put it. Two contended that the heart was in the middle of the chest, which statement was vigorously disputed by the third. To settle the matter, they opened a pig, and found the heart, of course, on the left side.

They had strayed far afield from the teachings of exact observation, the patient noting of symptoms, collation of facts, and generalizations of the revered "Father of Medicine."

For Hippocrates may truly be said to have shaped the molds in which the brain bullets of the Pasteurs, Virchows, Flexners, and Cabots are cast.

He knew that Nature was a well meaning but very ignorant old incompetent when it came to repairing injuries or healing conditions that were distinctly surgical. And his successors ever since have been trying to correct the blunders of Nature in seeking the easiest way to patch up an injury. Nature amputates a leg by the simple but inexpedient process of sloughing off the unfortunate member.

But her mistakes are not confined to orthopedic surgery. In appendic inflammation she makes a heroic attempt to "wall off" the seat of trouble by building up adhesions in the surrounding tissues, and then waits until the owner of the internal dynamite factory is away on a fishing trip, or somewhere remote from professional assistance.

Then she proceeds to blow the factory into smithereens — and the owner with it.

Even the sister science of medicine is far in advance of "Nature-Curo" in this matter, particularly if the recently discovered relief of appendicitis by arseniate of copper and eliminants should prove a success.

If any affection arises within the middle ear, the best Dame Nature can do is to perforate the eardrum, and set up a discharging abscess.

If in the eye, she obliterates the function of the cornea or lenses, and leaves the maimed wanderer to grope his life through a world of darkness, unless some wizardry of the oculist shall transplant healthy rabbit-eye tissue to replace that destroyed by wound or inflammation.

And even the mechanical arrangement of the various parts of the eye could be justly criticized. Helmholtz, whose scholarly researches have done so much to throw light

upon light, — also sound, — said, in fact, that if he had an optical workman who could not make a better pair of lenses than Nature often provided, he'd discharge him.

In the early morning of the world's intellectual light it required a great and daring pioneer to blaze a trail through the almost impassable jungles of ignorance, the morasses of prejudice, and map out a straight course to the lofty mountains of Reason and Scientific Fact. The seas Hippocrates sailed were uncharted, his sole compass the analytical deductions of his own giant mind.

And so we see why Herr Professor Lexer was enabled to practise his wizard carpentry upon the stiffened knee of the young German girl. Even a pygmy can see farther by mounting upon the shoulders of a giant.

And a really great man like Lexer might logically achieve a marvelous range of vision — in part, because that master craftsman, the titanic Hippocrates, had lived and thought.

CHAPTER XVI

Making Loose Teeth Tight

PROGRESSIVE American physicians have found out what ails ninety-five out of every hundred of us — and of all other adults in the civilized world. We now know why our gums lack grip, why we part untimely with our natural teeth. And this discovery has led to others equally amazing and valuable in overcoming dangerous and even heretofore incurable maladies.

It is all on account of one, or possibly two, varieties of our hereditary enemies, the Germ Family, which are found luxuriating on our twenty to thirty inches of tooth surface; also between and under the teeth, or in the crypts and pockets about their roots.

These animal parasites are the chief cause of pyorrhea alveolaris, known also as Rigg's disease of the gums. The name of the principal miscreant is entamœba buccalis. He was first discovered by Prowazek in 1904; but he has heretofore been considered a harmless vagrant, contented to loaf around on the outside of the teeth and gums. The charge against him was merely that he existed; for the evidence showed that he was occasionally found in what were thought to be perfectly normal mouths.

But his real character was revealed, when Doctor M. T. Barrett and Doctor Allen J. Smith (the last named is professor of pathology in the University of Pennsylvania) demonstrated that entamœba buccalis was the long-fingered villain that had been picking perfectly good teeth out of long-suffering gums. These findings were checked up and proved by Doctor C. C. Bass of the Tulane College of Medicine (who is to bugs what

Cesare Lombroso was to human beings), Doctor F. M. Johns, and later by wide-awake pathologists and dental experts throughout the country.

Of course, to get absolutely incontrovertible proof of this discovery, we ought to inoculate a healthy person with Rigg's disease by injecting living amœbas into his tissues, thereby producing what would then be the matter with him.

I call this bug a "long-fingered villain" advisedly; for, in common with others of his vicious breed, he gets his living by thrusting out jelly fingers (pseudopods) from various parts of his anatomy, in his search for food, or to assist him in migrating about.

The entamœba gains an entrance beneath the red ramparts of the gums through abrasions or wounds made by toothpicks or dental floss, the healing of which is prevented by particles of food forced between the teeth. Again, the disease may enter through the in-

flammation around the roots of the teeth, excited by ill-fitting crowns, overhanging margins of improperly constructed fillings, or through malocclusion (failure of upper and lower teeth properly to oppose one another), or through stony substances called calculi deposited from the saliva or blood serum, these being almost invariably found when pyorrhea is present. Extensions of the tooth enamel also press the gums, causing irritation and sponginess, which favor the breaking and entry of the invading amœbas into the domicile of the tooth roots.

Once within the ramparts, the amœbas may be relied upon to do the rest. They begin the attack by digging microscopic trenches and spreading infection, furnishing, in a short time, a favorable ground for reinforcements in the form of pus-producing germs, the staphylococci, and other irregulars in this perennial war.

The campaign that these Huns and Visi-

goths conduct carries the tissue destruction and purulence deeper and deeper, the outer coverings of the tooth roots being eventually destroyed in the siege. Finally the army reaches the tooth sockets, and attacks their bony structure. The teeth become loose, and pressure causes pus to flow from about the roots. Ultimately the suppurative process entirely destroys the attachments of the teeth. They fall out, or else become so loosened that they can be plucked out with the fingers.

The victim of this invasion usually has no knowledge of his condition until he begins to notice that the gums bleed freely on the least provocation, when brushing the teeth, for instance, or when removing impacted particles from between them. As the condition develops, the gum is stripped away from the tooth, destroying the sheath and alveolar process, the bony casing and nutrition chamber of the tooth. Last stage of all is the

shrinkage or retraction of the gums, and the final abdication of the teeth.

Dentists and physicians have wrestled with this almost universal problem of pyorrhea since the old Egyptian first penned his futile prescriptions in the Ebers Papyrus. All sorts of theories have been advanced to account for it, the most generally accepted being that it was of systemic origin, — either from tuberculosis, constitutional blood disease, diabetes, Bright's, or diminished alkalinity of the blood. Still other theorists, just as vehement and every bit as sincere, held that pyorrhea was due to a neglected state of the exudates, secretions, and débris of the mouth. They insisted that there was no systemic cause for its development other than what might predispose to any disease, and that it was simply a local inflammation.

Upon the treatment, however, almost all dentists agreed. This was deliberately to ignore the sensitive nerves of the patient,

and scale all the hardened deposits from his teeth, no matter how far up or down beneath the gum margin they may have extended. This gentle process was repeated as the calcareous or other accretions reappeared, or as often as the pyorrhea demanded it or the patient would endure it.

Six months was considered a fair time allowance for the chastened and well-scraped victim, with ordinary diligence, to accumulate another deposit. Then the scaling and the polishing with steel "scalers", orange-wood sticks, and pumice stone, and the burnishing and smoothing of tooth surfaces would be repeated.

It must be admitted that this treatment, in conjunction with a scrupulous toilet of the mouth, has perhaps given better results than any other methods thus far elaborated. But we were told that we were incurable; that we must continue to report for a semiannual ceremony of tooth scraping and polishing so long as we had a tooth to our name.

All this will be changed now. The old methods will be relegated to the dust-bin of the things of yesterday. For when Doctors Barrett and Smith found the cause of pyorrhea, they found also a cure for it. A remedy exists that is certain in its annihilating action upon these amœbas in more than eight cases out of ten.

This drug is emetine hydrochlorid, an alkaloid derived from that old-fashioned remedy, ipecac, — familiar friend of those departed days when not to have had croup, mumps, or whooping cough was to invite social ostracism. Our knowledge of this Army's action as an amœbacide (a killer of amœbas) is based upon the work done some years ago in Manila, Philippine Islands, by Doctor E. B. Vedder of the United States Army. Doctor Vedder found that emetine was practically a specific for that form of dysentery which is also produced by an amœba, as like the entamœba buccalis as are two peas — when they are

alike. He successfully treated hundreds of cases, and his methods have now for some time been in use throughout the tropical world.

So when Doctors Barrett and Smith, examining a group of forty-six victims of pyorrhea, each of whom had amœbas to spare in the pus pockets of his gums, looked about for something to slay these bugs with, they naturally thought of Vedder and his emetine. Various methods of administering the drug were tried; but the hypodermic finally gained the preference.

A deep injection of two cubic centimeters of a one half per cent. solution of emetine hydrochlorid is made into the muscle of the upper arm each day, for three successive days; alternating the arms to prevent undue irritation or itching. Some authorities prefer to use half-grain tablets of emetine, dissolved in a hypodermic syringe full of water — which gives about the same quantity of drug as the ampula of solution.

This is reinforced by a similar injection every fourth to seventh day, until the gums are entirely healed, and the teeth have been tightened back into their places. In addition, it has been found that the cure is hastened if a little of the injection is forced directly into the wall of each gum pocket.

In many cases thus treated all pus disappeared within twenty-four hours after the first injection. In those cases receiving the combined intermuscular and local injections, active signs of the disease were cleared up, the tissues took an appearance of youthful health, the teeth felt firmer, and the gums became harder and tighter.

The tendency to bleed stopped entirely in from twenty-four to forty-eight hours, and where only the gum tissue was involved, the inflamed gums became normal in from three to ten days, — or apparently just as quickly as Nature could finish the repair part of the job. Hundreds of pyorrhea cases have been

completely cured since the announcement of the discovery.

For home treatment in the early stages of Rigg's disease, excellent results have followed the local application of emetine solution to the gums. This is accomplished with a movable tipped atomizer, or by placing one or two drops of a one half per cent. solution of emetine hydrochlorid, or even a few drops of fluid extract of ipecac, upon a wet brush, and forcing the solution between the teeth, at the gum margins. In several instances the amœbas disappeared, bleeding stopped, and the gums resumed their normal complexion within a few days.

On account of the widespread prevalence of pyorrhea, a fact that cannot be too strongly emphasized, it might be an excellent precautionary measure to continue this prophylactic treatment indefinitely, even after a complete cure of pyorrhea has been effected, keeping a bottle of fluid extract of ipecac, an atomizer,

or a vial of emetine solution, on the bathroom shelf directly alongside the tooth paste, for this purpose.

It would be well also to remember that where there is destruction of the membrane covering the roots of the teeth, or where the gums have receded, this tissue has gone the way of all flesh. It cannot be entirely replaced by any form of treatment. With a healthy local nutrition taking the place of an active disease process and pushing it completely out of existence, some slight development of gums and root covering may perhaps be expected; but even though this may not take place, be thankful that the destructive process can be arrested.

It requires no expert knowledge to give this treatment. Any capable and careful physician or dentist can make the injections. Personally, I should prefer a conscientious dentist to officiate in the slaughter of the parasites, as he would be qualified also to

remove all tartar or other deposits from the teeth. This thorough cleaning and scaling should be done semi-yearly, in any event.

Pyorrhea should not be confused with that condition in which there are simply tartar deposits on the teeth. In pyorrhea there is usually, but not always, tartar. The tartar is merely the result of a combination of certain secretions of the mouth with organic and mineral matters derived from the food, usually in the presence of an excess of acid. By keeping the mouth secretions more alkaline, using soda, salt, or milk of magnesia for that purpose, much of this trouble can be prevented.

Pyorrhea, however, is a distinguished member of an entirely different breed of germs. It requires specific treatment to banish this baneful tribe.

The cure of Rigg's disease is, interestingly enough, only one of the many medical marvels that emetine accomplishes. For instance, it

has been known for some time that a complete clearing up of many cases of diabetes and other systemic conditions has followed the mechanical removal of all evidences of pyorrhea. In one case, reported by Doctor D. D. Smith of Philadelphia, a man of fifty-seven was under treatment for some time on the usual diabetic diet and other measures, with no appreciable results. Successful instrumental treatment of the pyorrhea with no further constitutional medication, resulted, within five months, in the complete elimination of the sugar content. In another case, treated at the same time, the results were equally satisfactory.

If science should eventually prove that certain forms of arthritic rheumatism, gout, and the circulatory and heart complications that accompany these disorders, are due primarily to the entamœba buccalis, the discovery of this germ and its Nemesis is even more important than is Erlich's magnificent

achievement in perfecting his specific for constitutional disease.

Quite recently several cures of Bright's disease have been reported by credible observers, resulting from the correction of their pyorrhea infection; that is, they were cured so far as the test tube, the microscope, and physical inspection were concerned. Albumen and waxy casts disappeared, and dropsy and all other symptoms were cleared up. It is too early to enthuse, perhaps; but it is evident that a strong note of hope is sounded for many sufferers from these troubles.

Also, in five out of seventeen cases of excised tonsils recently examined by Doctors Barrett, Smith, and William S. Middleton, the entamœbas were found occupying reserved seats, and it is thought that with increased experience in the technic of hunting for them, this percentage might be materially increased. The far-reaching significance of

this will appear when it is remembered that infection from the tonsils undoubtedly causes some forms of rheumatism, anemia, Bright's, and diabetes, and that we may now be on the trail of the cure of these diseases.

It also seems quite likely that we have discovered one more cause for that complex and sadly maltreated condition known as "stomach trouble"; for in a number of cases of Rigg's disease treated by Doctor Barrett and others, there has been noted, after the assassination of the pyorrhea amœbas, a complete disappearance of all symptoms of stomach and intestinal disorders.

This seems to indicate that the cure of the mouth lesions had eradicated the bacteria and other poisons, the constant swallowing of which may have caused the alimentary organs to send forth their wails of distress.

So, if you have tried diet and digestives, lavage, and plain living, without quieting the gastric protests, it might be worth while to

have a competent pathologist take some of the secretion round the necks of your teeth, add a little salt water to it, and put it under a low-power microscope. If the entamœba buccalis is observed splashing around and enjoying himself, get your physician or dentist to give you a course of emetine. It seldom does any harm, — unless it be to provoke a a little temporary nausea, or to cause a trifling local irritation, — and may entirely appease the anger of a long outraged digestive tract.

Another grave condition, one cause of which undoubtedly originates in infection derived from the presence of amœbas in the mouth, is uremia (an excess of urea in the blood). This occurs as a result of the constant swallowing of toxins generated by parasites, and of pus and other effete products, which are constantly and inevitably taken into the stomach because of the infective condition of the mouth.

The belief is now gaining ground that

anemia may be in part due to septic conditions in the mouth. If this be true, as maintained by Doctor William Hunter and other English physicians, our old friend the entamœba bug is undoubtedly a large factor in the infective process, and may be an accessory before the fact in causing this obscure and obstinate disease.

In fact, this revolutionary discovery of Barrett and Smith is so far-reaching in its scope as almost to take on the aspect of a mediæval miracle. Even from an economic viewpoint, measurable in increased human efficiency, it is worth millions of dollars to the world.

As illustrative of the remarkable results obtained by this treatment, a typical exhibit "A" might be presented. The case is one of a number treated by my brother, Doctor A. T. Bowers of Pittsburgh. The patient, a man of wealth and culture, spent most of his time in traveling. To his certain

knowledge he had been afflicted with pyorrhea for upward of twenty years, and without his knowledge for probably as many more.

He had tried all known forms of treatment. From Hongkong to London, from Petrograd to Pittsburgh, his pilgrimages carried him, and always he had his pyorrhea in mind (perhaps I should have said the cure of his trouble, as the mind, so far as we know, isn't pestered with pyorrhea).

The old gentleman was as "nervous as a cat", and was the chagrined possessor of a breath that was indubitably not related to the perfumes of Araby the blest. Also he had that very common condition known to doctors as "malaise", but among the laity as "all in." This included the ownership of a sallow skin, a coated tongue, and a woeful lack of appetite and ambition. The impatient victim had lost four or five much-prized teeth, his gums bled under the slightest provocation or from no provocation at all, and he

could, if he were so minded, shake every tooth in his head. He himself asserted in all sincerity that he could wag his teeth proportionately much farther than he could his head.

He received three injections of half a grain each of emetine, part of which was introduced directly into the pockets at the roots of the teeth. This was followed by one additional injection a week, for four weeks. After the second injection the bleeding stopped. The gums became progressively firmer, and now, after six weeks, so far as ocular evidence is concerned, the man is cured. The nervousness and "all in" feeling have been replaced by a grip and vigor that had been his only in pleasant dreams for many years. His digestion has improved notably, and if he were sufficiently foolish to attempt it, he probably could crack nuts with some of his remaining teeth.

But the antibleeding action of emetine on

the gum fades into insignificance in comparison with its marvelous power of arresting dangerous hemorrhages from other sources. The most obstinate cases of nosebleed — cases that have resisted the action of all styptics, packing, tamponing, or local applications — have been stopped almost instantly with one injection of emetine.

Immediate results follow its use in the distressing and dangerous hemorrhages of tuberculosis and gastric ulcer, and its action in other forms of bleeding is almost instantaneous. It is thought also that the difficult and delicate operation of blood transfusion, intended to check hemorrhage in babies and others lacking coagulating power in their blood, will no longer be necessary. Instead of risking the introduction of an air bubble into the child's veins, which might stop the heart's action, or introducing particles of solid material, such as fibrin, which might lodge in the small capillaries of the brain and cause

paralysis, the doctor will now need merely to inject one half or two-thirds of a grain of emetine hydrochlorid. This does the same work, in a much shorter time, and without risk. Also it is interesting to know that the fighting armies of Europe are being supplied with these tablets to prevent or limit bleeding from wounds.

The credit for developing the anti-hemorrhagic uses of emetine we must share with French physicians; but as to our priority in determining the cause of pyorrhea and its resultant diseases there can be no question.

Since this discovery by Doctors Barrett and Smith that the chief cause of pyorrhea is a vegetable organism, thousands of cases of pyorrhea have been cured, — more than eight in ten, as before stated.

Yet now, however, if the experiments of Doctor Barton Lisle Wright, Surgeon United States Navy, and Doctor Paul G. White, Dental Surgeon United States Navy, are

borne out by additional favorable experiences, an even more radical means of stamping out Rigg's disease has been found.

It was pointed out that the entamœba, by breaking down the gum and bony tissue, sowed the ground for the invasion of hosts of other parasitic bugs and plants. And that, while emetine killed amœbas, it had no absolutely specific action upon the pus-forming germs and other busy bugs that gather for the Lucullian feast.

So there are a certain number of cases which, in spite of emetine and thorough scaling and cleaning of the teeth, fail materially to improve.

But now, it is confidently believed that we can cure — not eight out of ten — but ten out of ten, because we have found a drug, one of the oldest and most respectable in medicine, which not only kills entamœbas, but also, if properly used and in sufficient dosage, kills all other vegetable organisms.

This old drug is mercury, which has a chemical affinity for microscopic plants, and pays especial and peculiar attention to putting these *hors de combat*, just because of this affinity.

Doctor Wright selected the succinimide of mercury in his work, as larger doses of this can be injected than of any other salt of mercury. Also, it is readily soluble, and does not cause much, if any, tissue change or irritation, when properly injected into the muscles. He was led to undertake experiments in the treatment of Rigg's disease because of his successes in tuberculosis, pneumonia, typhoid fever, erysipelas, meningitis, rheumatic fever, and chronic rheumatism, mumps, and many other infectious conditions.

It is interesting to know that 54.2 of Doctor Wright's tubercular cases were cured. Of fifteen cases of pneumonia, thirteen were immediate cures following one injection.

The crisis usually began about seven hours after the injection, although in several cases the crisis commenced within an hour, the lungs cleared within twelve hours, the sailor boys making rapid and uneventful recoveries.

When I spoke with Doctors Wright and White, early in the summer of 1915, they had treated twenty-eight consecutive cases of pyorrhea, every one of which was cured in from four to forty-one days. The average length of time required to perfect a cure was fifteen days. The largest number of injections required to cure the pyorrhea was six; the smallest, one; while the average was two and seven tenths.

Of these cases nine had systemic infection, probably caused by the condition around the teeth. Six of these were chronic rheumatism; one chronic stomach trouble; one chronic facial neuralgia; and one laryngitis. These were all cured of everything that was the matter with them by curing their gums.

The local treatment given by Doctor White consisted in careful removal of deposits and tartar from around the necks of the teeth, extraction of utterly hopeless teeth and roots, polishing of the tooth structure, and the application to the gums of iodine, aconite, and chloroform.

Doctor Wright's treatment, it is needless to say, must be given by a competent medical man. For disagreeable, painful, or even dangerous results may well follow the administration of mercury at the hands of an amateur, and where the kidneys are involved, the treatment should not be given at all.

So, it seems quite certain that another big advance in the preservation of life and health has been made. And not the least satisfactory part of it — as with the discoverers of the original cure for pyorrhea — is that the men credited with it are also brother Americans.

CHAPTER XVII

The Quest of Beauty

"IF Cleopatra's nose had been shorter, it would have changed the history of the world." So concludes Pascal; and, being a Frenchman and a philosopher, he knew. It might also be observed that a hare lip or a bald head on Helen of Troy would have made Homer pause. Also no mere man can be at his best with a pair of large, outstanding ears, which, viewed from behind, give him the appearance of a startled fawn or a ferocious rabbit. Nor can one be serene and self-possessed whose divergent eyes gaze rhapsodically in a general direction of east-northeast when he is supposedly focusing on west-by-sou'west.

By the appeal of the strong, symmetrical limb, the well-developed body, the bright eye, the clear complexion, and the undeniable aspect of vigorous good health that radiates from a clear-blooded man or woman, Nature achieves her ultimate object, — the perpetuation of the species. This is unquestionably the real, fundamental reason for a beauty that influences us to such a degree that we are prone even to associate purity of mind and of heart with clearness and transparency of complexion. So, to become as attractive as nature, art, and science permit is a duty we owe to ourselves and to society.

More than this, beauty, like a banknote, has a face value, both socially and commercially. It is perhaps the most valuable asset of a woman; for it is only human nature to desire to be surrounded by beautiful things, and there is no more beautiful thing on earth than a beautiful woman.

Therefore, the search for beauty being

justified, how far is it justified? Where do physiological reason and human skill leave off, and foolishness and fakery begin? What processes and methods have scientific sanction, and which are futile, or actually harmful?

This really important matter has been largely ignored by orthodox science, as unworthy the profound consideration of bespectacled wisdom. Enterprises of great pith and moment, related to the fundamental principles of increasing the sum total of beauty, have thus been ignored.

World-famous scientists, who would cheerfully spend a whole lifetime in a vain search for a germ, have thought it beneath the dignity of their calling to spend five minutes removing a mole. Neurologists who regard no form of orthodox treatment as too laborious or expensive (to the patient) ignore the suggestion that a self-conscious, morbid case of squint eyes, or a hollow-chested, scrawny-necked neurasthenic might derive more bene-

fit from contemplating a radical improvement in his personal appearance, brought about by a simple operation or properly selected exercises, than from any amount of sedatives or tonics. The medical profession has hesitated to admit that serenity of soul may come to patients from a consciousness that — after certain special treatment — their beauty may be visible on the outside, even if that beauty be only skin deep.

But light is breaking, and gradually science is taking the correction of physical defects and skin blemishes — those conditions which might be termed remediable deformities — out of the hands of the quack and charlatan, and is giving them a share of the attention to which, of right, they are entitled. It is interesting to see just how far science has gone in this connection, what it indorses, and also what it condemns.

Time has an unpleasant fashion of etching his imprint upon our classic features, until

sometimes they are as an open book to the eyes of those trained to read character — or lack of it — in the countenance. Many of these deep-graven lines might have been avoided had our lots been cast in pleasanter places. Honorable scars in our battle with Destiny they may be, but oftentimes most unsightly.

The worst of it is that they always make their first appearance upon the face, where they are most in evidence. This is because of the mobility of the facial muscles, of the larger part they are called upon to play in expressing emotions. That is one reason why the neck, shoulders, and arms of many a woman of fifty could properly belong to a girl of eighteen. If there were nothing else to justify décolleté dress, this alone should prove sufficient.

Of course a woman who is by nature bovinely placid, whose facial muscles remain perpetually quiescent because she has nothing

to express, is far less likely to show the eroding marks of thought, or sympathy, or care, than one who has been buffeted by the shocks of stressful life. To the man who understands how and why these lines have been penciled, these life-worn faces take on merely added beauty, a beauty of the soul and mind, which in his eyes is not to be compared with mere smoothness of skin, or plumpness of the muscles that underlie it.

However, while we cannot check the advance of Age, nor stay his furrowing hand, we can refuse to be frumps. We can do much to render these lines less obvious. A majority of us look ten years older than we are entitled to look.

There is a beauty that belongs to the seven ages of man — or woman. It is a social duty for each of us to achieve this particular comeliness, so far as we can, and, having achieved it, to hold on to it. Failing to do so offends the artistic sense of everybody.

It is a false note, a jarring discord, in the harmony of social relationship. The discord stands out in double-forte, especially if the defect is correctible.

The most successful "beauty specialist" in the world is the conscientious family physician who understands your condition, and can best remedy defects in the physical machinery; for the first and most important cause of beauty is good health. In fact, true beauty can rarely be dissociated from good health; for a clear skin is rarely found except with a body that functions normally.

Even without medical aid, if one is careful to establish perfect regularity of the natural physical processes, to secure wholesome food in a balanced dietary, and to take daily baths, one can accomplish wonders in bringing about this normal condition. Then, with proper dress, — dress that favors free and untrammeled circulation of the blood to all

parts of the body, — a pasty or disfigured complexion or a red nose should clear up. If it does not, the advice of the family physician should be sought; for any competent medical man can soon set things to rights by a course of blood making, or alterative and eliminative treatment, and regulation of the diet. And he isn't likely to charge nearly so much for the service as some other varieties of "beauty specialists."

Another obvious aid to beauty is the perfect condition of the teeth. In this age of practically painless dentistry there is no excuse for men or women inflicting themselves upon friends and fellow countrymen without a mouthful of pearly teeth, — not even if the "pearls" have to be pried loose from a piece of black wax, and baked on a red rubber plate, before they can glorify an otherwise bereft face. There is nothing much more intolerable than the disagreeable breath that accompanies decaying teeth, or the decom-

posing foods that incompetent teeth fail properly to prepare for digestion.

These defects lie absolutely within the power of the dentist and the physician to correct. For those not able to afford treatment there are now free clinics in most large cities; so there is no possible excuse for longer offending the olfactory and optic nerves.

Further, bad teeth and imperfectly masticated food are the cause of myriads of papulæ and boils, as well as of blotchy skins and sallow complexions. Bad teeth, therefore, are responsible for much of the lavish employment of lotions; the most potent curative effects of which, next to the magic of their pleasing colors, lie in their all-satisfying odor, their convincing expense, and the unique or graceful shape of their containers.

The next most obvious and easily eradicated aids to ugliness are blackheads.

Among the fair sex these enlarged pores

usually make their first appearance upon the nose. The reason is clear; for these areas receive most attention from the powder puff. After the pores are nicely dilated from the action of a hot bath, it is very easy to fill them full of powder, if one is persevering and diligent. This, of course, prevents the escape of impurities, and after being properly colored by dirt they form what we know as blackheads.

The cure is a comparatively simple matter; although it may take some time. First, stop using powder; then soak the nose in a hot cloth, thoroughly dilating the pores. If the skin is very thick, the blackheads should be radically removed with a special instrument devised for this purpose. Next, wash the parts thoroughly and carefully with a bland soap, preferably of vegetable oils, using a camel's hair face brush and rinsing with hot water.

Then "iron" all the pores into a state of

tonic contraction with a small piece of ice, and keep them so contracted by applications of witch hazel. And give them a fighting chance to keep themselves clean by refraining from further blocking their orifices. Thus will you and blackheads have parted company.

Next we have the telltale tracery of wrinkles. The actual cause of wrinkles is of course the gradual loss of fatty tissue in the layers that pad the muscles, together with a hardening or actual shrinking of these muscles, and a loss of elasticity in the skin stretched over them. These evidences of age are certain to manifest themselves sooner or later. It is merely a question of living long enough to give them a chance.

But, many eminent authorities to the contrary notwithstanding, a perceptible degree of local nutrition can be influenced by careful massage over the wrinkled surface with some preparation having a lanolin or

other fatty base. Cocoa butter, on account of its stimulating effect upon the hair glands, and the darkening of the skin that follows its use, should not be used on the face.

Care should be observed to stroke always in a direction longitudinal to the muscles underneath. Or, better still, use a rotary movement, under very mild pressure, or else resort to gentle pinching and patting of the skin and muscles. This last is perhaps the safest method for amateur use. The principle consists in stimulating the local circulation of blood in the parts, thereby favoring nutrition of the tissues lying underneath.

In this connection it might be well to remember that in no branch of the business of becoming beautiful is there more chance of making a bad matter worse than by wrongly applied or injudicious methods of massage. More actual harm may follow fifteen or twenty minutes' violent pulling and hauling

than weeks of expert treatment can correct. Those who attempt home treatment should learn the proper methods by observing some expert, noting the degrees of pressure and the direction of the stroke; or they should familiarize themselves with the anatomy of the facial muscles, providing themselves with an elementary textbook or a chart for this purpose. For it may work actual injury in these conditions to attempt to operate by mere rule of thumb.

Not so commendable is that method of wrinkle removal which consists in taking hide and hair off the martyr worshiping at the shrine of Beauty. This is accomplished usually by means of a caustic paste that "kills" the superficial tissue. Combinations of mercury and egg albumen, or caustic acids or alkalies, are generally employed for this purpose, and some very disagreeable burns and scars have been inflicted by their agency. And, to pile Ossa upon Pelion, the sufferer

almost invariably retains her original collection of wrinkles.

The "encorchment treatment", so called, has been employed with more or less success for wrinkles; although its chief use by "beauty specialists" is in the removal of facial blemishes, birthmarks, freckles, liver spots, and sundry other nondecorative conditions.

This treatment is far more efficacious than the "iodine plaster" formerly employed, and is much safer. It is also more readily applied and removed. The treatment consists of a number of very active drugs which are plastered in little squares of surgeons' gauze over the surface intended to be beautiful — beautified at any cost. After several days the pieces can be picked off, taking what remains of the old skin with them.

The new surface will be found to present a very fine imitation of baby's skin — for a time. If the treatment is allowed to remain

on too long, abscesses and ulcers are likely to appear, and the heroine's last estate may be infinitely worse than her first.

That method of wrinkle eradication known as "enameling" or "rejuvenating" may well be shunned as a delusion and a sophistical snare. This consists in painting the face with whites of eggs in which certain chemicals are incorporated, and permitting the mixture to dry on. Several coats of this "beautifier" are applied, and after the last one the lady is in possession of a set of features that have all the animation, mobility, and expression of a turnip.

It is hardly necessary to say that the enamel cracks off in the course of a few days, leaving the face even more rugged and unrefined than it was in the first place; for the natural function of the sweat glands has been inhibited, and anything that destroys normal functioning is a splendid thing to avoid.

"Face steaming" is another reprehensible method employed in the attempt to banish wrinkles. For a short period, — say during a sixteen-course dinner party, — the steamed face may appear plump and rejuvenated, because a certain amount of local reaction follows the steaming process. But the pitiless hand mirror and the "cold gray dawn of the morning after" combine to disillusion the woman who is addicted to the pernicious practice of face steaming. As a general proposition it might be safe to say that the oftener and more thoroughly wrinkles are steamed, the deeper and more obvious they will become.

In this form of incantation the face is liberally greased, then bathed with "medicated" steam, the "medication" consisting of something to give the steam a pleasant odor. This opens the pores, and permits all the sweat-gland secretions to escape; which perhaps might be well enough but for the

fact that the natural oil, so essential for the nourishment of the skin, escapes at the same time.

Excessive steaming weakens the secretory functions of the glands of the skin, and also has a tendency to leave the skin dry and coarse. It does the very thing it is supposed to prevent, — it makes four wrinkles grow where before there was only one, and a suspicion of a few others.

Those little skin-thickened tumors known as warts constitute another gift that humanity, especially the feminine part of it, can very well do without. Any physician can burn these off painlessly and effectually by the use of the electric needle, a freezing spray of ethyl chloride, or some cauterizing agent. So one doesn't have to keep them unless one chooses to. And there certainly is no good reason for being and remaining any uglier than Nature and Science intended.

The common or domestic mole, with or

without hair, can be driven from the premises by the same gentle means that are employed so successfully with warts. Perhaps electrolysis is the most popular and effective form of treatment for moles, and in the hands of an expert it leaves very little scar tissue.

Even better, in that the remaining scar is hardly perceptible, is the treatment of all these various growths with "carbonic snow" (frozen carbon dioxide). Most skin specialists now employ this in preference to any other method in removing growths and skin defects. Applications of the carbon dioxide snow are painless; in fact the principle of intense cold is utilized to produce local anesthesia, and the resulting sloughing and healing are likely to be rapid.

Those bluish discolorations known as nævi usually respond to treatment by carbonic snow. If this fails, however, catgut sutures may be introduced under the skin at their base, taking several sittings for this purpose.

These close off the circulation, as well as the color deposit, and in time the growth dies of starvation, and is replaced by healthy, colorless tissue.

For women afflicted with a more or less disfiguring growth of hair on the face there is a large ray of hope in the electric needle, but not much hope of permanent results from any local application of so-called depilatories. While barium, strontium sulphide, and other hair-destroying agents corrode the hair, so that it can be scraped off with a blunt paper knife, it cannot be kept off permanently by these means; for the hair follicle, the little bulb that makes hair possible, is not killed.

But if the fair one adorned with superfluous hair has the courage to permit the rather painful and tedious process of inserting an electric needle into each hair root, — a process, by the way, that requires considerable skill and technical dexterity, —

all these hair bulbs can be destroyed absolutely. It requires time and considerable determination, but it can be accomplished.

It might be mentioned in passing that under nitrous oxide and oxygen analgesia, which prevents pain without producing unconsciousness, this process can be rendered painless.

Disfiguring scars, caused by burns, wounds, or cuts, can frequently be removed by dissecting away the scar tissue, after which the bordering skin can be stretched over the denuded surface, and the edges sutured together. It is surprising and very gratifying to find what an amount of "stretch" there is in a healthy skin, especially if it isn't too old.

With the expense of these various methods and procedures we are not here concerned. A thing is really cheap at any price that transforms unattractiveness into attractiveness. Competition and the law of supply and demand may be relied upon to regulate charges. If a woman wishes to be

robbed in de luxe style, she will no doubt find ample opportunity. If, on the contrary, she recognizes that bad teeth, bad skin, and lusterless hair are wrapped up in bad health, she will begin by attending to her teeth and health. She will realize that her fight against advancing years, skin blotches, and unsightly conditions really began in earnest when she first began to diet, — when she sacrificed the seductive chocolate cream, and tabooed the pie.

However, after the dentist and the family physician have done their utmost, if anything yet remains, a "beauty expert", who is really what he claims to be, may be sought. For there are conscientious beauty specialists who are capable and honest, and there are others who should be in the penitentiary.

Remember that a considerable amount of beauty may be cultivated; for beauty is not entirely an accidental gift of Nature. Frequently it is sought with a club, waylaid,

and annexed as a tribute to perseverance. And when this is accompanied by glowing health, sparkling eyes, and rich red blood it looks just like the kind that poets rave about.

Heretofore "cosmetic surgery" has remained almost exclusively in the hands of irregular practitioners; but all signs indicate that this form of surgical advance will soon become a part of regular medicine.

So we have seen that, while there is much to be avoided in the quest for beauty, there is also much that is scientific, justifiable, and commendable. And, even though it should entail a little expense and trouble, beauty is always rewarded, even if by nothing else than itself.

Heaven knows there are few enough of us who dare look a mirror in the eye without a blush of apology! If there exists any legitimate means of increasing that number, in fair Aphrodite's name let us exert ourselves to that end!

CHAPTER XVIII

Push the Health Button

WE grind and grit our teeth during paroxysms of pain. When we bump our shins against a rocking-chair that has taken point of vantage directly in our path, immediately we clasp the offended shin.

In the days before the blessed era of nitrous-oxide and local anesthetics, when the muscular dentist leaned toward the door with our pet tooth in the firm embrace of shiny forceps, we helped him to the utmost by gripping the arms of the chair with vise-like clutch. This manœuvre seemingly had no more connection with tooth extraction than have the effulgent rays of the moon upon

the pumpkin crop. But we felt our duty, and we did it.

When fury and anger sweep us in their red flame, and gentle, familiar aspects of nature take on the hue of blood, we clench our fists until the nails are driven deep into the flesh. In the first shock of the agony of bereavement, or during those cruel dragging hours when we are adjusting ourselves to living with our hearts torn asunder, we clasp our hands in frenzy. For ages we have been doing these things because they are natural and apparently inevitable. We did them automatically, without knowing why.

Now, however, Doctor William H. FitzGerald, of Hartford, Connecticut, maintains that these actions are not only instinctive but scientific. He contends they produce a form of analgesia somewhat similar to that which follows the injection of water or some anesthetic solution into a nerve.

Doctor FitzGerald's position is one that

commands respect. He is a graduate of the University of Vermont, and spent two and a half years in the Boston City Hospital. He served two years in the Central London Nose and Throat Hospital. For a like period he was in Vienna, where he was assistant to Professor Politzer and Professor Otto Chiari, who are known wherever medical textbooks are read.

For several years Doctor FitzGerald has been the head of the nose and throat department of St. Francis Hospital in Hartford. He is an active member of most of the American medical societies, and is recognized as one of the great throat and nose surgeons in this country.

Doctor FitzGerald doesn't advance any theories explaining his discoveries. He deals only with facts. Accident disclosed that pressure on a certain spot in the nostril gave practically the same result as the use of cocaine. This was six years ago. He began

experimenting, and found there were many spots in the nose, mouth, throat, and on the tongue which, when pressed firmly, deadened certain areas to sensation. This nerve pressure isn't infallible. Doctor FitzGerald has found that nerve pressure will obliterate pain in about sixty-five per cent. of cases, while it will deaden pain in about eighty per cent.

In the hands of others who have tried nerve pressure the percentage often is much lower, because they haven't learned how to apply it. The foci are no larger than the head of a match. If the operator doesn't hit them, he misses them completely, and also misses results.

Doctor FitzGerald also found that any pressure which tended to relieve pain tended to remove its cause as well, no matter where this cause originates.

Now, it is agreed by most physicians — and by all members of the Hay Fever Society — that hay fever is incurable. Yet the dis-

coverer of the health push buttons can't remember how many cases of hay fever he has treated. And it is not of record that the treatment, either in his hands, or in those of any other who knows how to use it, has failed.

The treatment is simple enough, — merely the forcible stretching of the soft palate in the back of the roof of the mouth and those contracted parts of the nasal passage where the throat begins and the nose ends; together with pressure with a probe upon different areas of the nose, tongue, and on the wall of the pharynx.

The wearing of tight rubber bands upon the thumb, first and second fingers for ten or fifteen minutes, repeated several times daily, also seems materially to help.

While it requires a physician familiar with the foci to determine the proper ones to press, a tongue-depressor which covers the center of the tongue will give temporary relief, if pressed down firmly for three minutes.

It should be emphasized that any abnormal condition of the nose must be corrected before hay-fever can be permanently cured. Doctor FitzGerald contends that among all the hundreds of hay-fever victims that have come under his care, not one had an absolutely normal nose. Invariably there have been bony spurs, protruding turbinates, deviated or twisted cartilages, or else an inflamed mucous membrane lining.

In hoarseness, huskiness, or in loss of voice due to strain (as clergyman's sore throat), firm pressures on the floor of the mouth, beneath the tongue, in addition to pressure on the tongue with a tongue depressor, have afforded splendid results.

In certain forms of deafness the FitzGerald method has been very successful. Doctor FitzGerald has restored a very fair degree of hearing to many pronounced by competent aurists absolutely incurable. Pressure is exerted with a curved probe on the gums,

between the wisdom tooth and the angle of the jaw, on the side affected.

One of the most interesting cases was that of a young soprano, member of a leading Hartford church choir. This lady suffered a progressive loss in hearing, which finally became so pronounced as to make it almost impossible for her to "sing on the pitch", or to harmonize with either the organ or the other quartette members.

Firm pressures were made, supplemented by "home treatment." This consisted in "tucking" a large wad of surgeon's gauze in the space back of the wisdom tooth, and biting forcibly upon it, repeating the procedure several times daily, especially before singing or rehearsing. In a few weeks this girl had completely recovered her hearing, and was able to accept an engagement with a traveling concert company. This is but one of thirty or forty cases in which the results have been equally remarkable.

Painful conditions peculiar to women, in many instances, yield magically to the potent pressure of the probe. In this connection I might suggest the following experiment: Take a tablespoon, place the point of the handle on a spot three-quarters way back and on the median line of the tongue; press firmly, and hold for a minute; relax, and reapply pressure, at the same time turning the spoon from side to side to emphasize the point of focus. Then pass the spoon farther back, and press gently on the posterior wall of the pharynx. Methods similar to this relieved many scores of cases. And the comforting factor in all this practice is that patients are usually better the next morning than they are even after a most successful treatment.

Headaches and neuralgias of purely nervous origin and not due to autointoxication, or some specific organic cause, after pressure on the roof of the mouth, subside

in a few moments. Many of Doctor Fitz-Gerald's patients cure their own and their relatives' headaches by firmly pressing the thumb against the hard palate, varying the points of pressure from the roots of the teeth to the junction of the hard and soft palates, depending on the location of the pain.

Some extraordinary cures have been reported in rheumatism and lumbago by pressing the teeth of aluminum combs over the fingers and wrists, using the palms of the hands for the back, and the backs of the hands for the front of the body. The operator commences with the tips of the fingers, making deep and rather painful pressures, and gradually works up the fingers to the wrist, consuming, in all, from ten to twenty minutes in the operation. Patients who have come to the office "all doubled up", straighten out, and after two or three of these treatments, wend their homeward way rejoicing.

Nerve pressure has accomplished remark-

able results with goiter. This swelling in the neck results from some abnormality of the thyroid gland. To relieve the feeling of suffocation, the rapid heart action, and the distressing nervous symptoms of goiter, Doctor FitzGerald experimented with nerve pressure. He applied a probe to the back wall of the pharynx, passing it through the nostril. To his surprise he found that not only was discomfort lessened, but the nervous symptoms and the swelling began to decrease.

In the past fifteen months Doctor Fitz-Gerald has treated twenty-one cases of goiter, many of them of the exophthalmic variety, which means protruding eyeballs, heart symptoms, and most unsightly swelling. Twelve have been discharged as cured, while eight others are on the high road to recovery. The tape measure showed that in some the swelling decreased three inches in as many weeks.

In treating these cases a thin probe, the

point of which is wrapped in cotton dipped in a little camphor water (this seems to increase the "impulse") is passed through the nostrils to the posterior wall of the pharynx. Pressure is made until a definite sensation is felt in the region of the goiter. Sometimes this is "metallic." Or it may be a sensation of cold, or tickling, or like an electric current, or else a mild pain.

This pressure is then held for several minutes — repeated three or four times daily. In addition, pressures may be made upon the joints of the thumb, first and second fingers. Or a moderately tight rubber band may be worn upon these fingers for ten or fifteen minutes, three or four times daily.

Of the twenty-one cases Doctor FitzGerald treated one proved intractable. She was sent to a gynecologist, who found she was suffering from a large tumor in the same zone as the goiter.

This case and many experiments seem to

support Doctor FitzGerald's contention that the human body has independent nerve zones, and that pressure upon the centers controlling these areas affects abnormal conditions in every part of the particular zone.

The Hartford physician divides the body into ten perpendicular zones, including the line running up the middle of the body, and these zones correspond to the fingers of the hand, or the toes. One using his method must know which hand or foot to press, and how, in order to get a definite result.

If the first joint of the thumb is pressed firmly and steadily for three minutes, it will relieve and favorably influence pain in the stomach, the chest, the front teeth, the nose, the great toe, as well as everything else in this zone. But it will not have the slightest influence upon the tonsils, the liver, or the spleen; for they are in the fourth and fifth zones, and to affect them it is necessary to make pressure upon the fourth or fifth finger.

Furthermore, pressure on the right hand will not have any effect on the left half of the body.

It makes a difference, too, whether the upper and lower or the side surfaces of the joint are pressed. A physician experimenting with the method was ready to condemn it because he was unable to relieve a patient who complained of rheumatic pains which seemed to center on the outer side of the ankle bone. The doctor grasped the second joint of the patient's right little finger and pressed firmly for a minute on the top and bottom of the joint. The pain persisted, and the doctor jeered at the method.

A disciple of Doctor FitzGerald smiled and suggested that the doctor press the sides of the finger, instead of the top and bottom. This was done, and the pain disappeared in two minutes.

In the pursuit of his own specialty Doctor FitzGerald found that the teeth played a

highly important part, as decay in them evilly affected the throat, particularly the tonsils, and had an especially vicious effect upon goiter. He declares he never has seen a case of goiter in which there was not something wrong with the teeth.

As a means of diagnosis, physicians familiar with zone-therapy consider it almost invaluable. If a patient complains of pain, the origin of which seems obscure, these physicians assure themselves first, that it does not arise from eye trouble. If then the nose and throat are clear, and the dental expert reports that the teeth are sound, the doctors know that they must look elsewhere through the zone involved for the source of trouble.

The Hartford doctor believes we should strive to keep all our original teeth to preserve the continuity, if it may be so termed, of our various nerve zones. Sound, healthy teeth and roots, in their proper occlusion, seem to assist in the normal functioning of

the entire zone chain, of which they are important links. For in several instances, chronic frontal headaches in children have been cured by correcting faulty occlusion of the front teeth by that branch of dentistry known as "Orthodontia." When after several months' treatment, the teeth were restored to their normal alignment, and continuity of the nerve zone was reëstablished, the headaches cleared up, and there has been no return of them.

Excellent results have been reported from the use of zone-therapy in dentistry, but in this article we can deal only with the use of the principle in medical conditions.

Last June the New Hampshire Dental Society held a convention at Weirs, on Lake Winnepesaukee. One of the residents of the summer colony was brought before the convention on the evening of June 23. Her serious condition baffled the local physicians. It was hoped that among the two hundred

scientific men, gathered there from all parts of the East, some might be found who could help her.

She was a woman about thirty-five years old, well nourished and apparently healthy, apart from a large swelling in the front of the neck. Manifestly the thyroid and other glands had become enlarged through some unknown inflammatory cause. She was suffering great pain. The slightest touch caused agony. Swallowing was impossible. Not even a drop of water had passed down her throat since the preceding Friday night. This was Wednesday night.

A healthy human being can exist from seven to ten days without water. This woman had been without water for five days, suffering mental and physical torture. Her physician insisted, as the only means of saving her life, that an operation be performed at once. The half dozen or more physicians who had been called in consulta-

tion concurred in this. There was nothing left but to perform an intubation — the insertion of a tube in the gullet, through which water and food might be passed — pending some possible measure of relief.

The heart was racing along at one hundred and fifty beats a minute, and there were all the peculiar symptoms usually associated with thyroid disturbances. Inasmuch as the whole trouble had developed in a week, it was most unlikely that the condition was goitrous.

As it was probable that the trouble was associated with the thyroid, a physician present decided to try the FitzGerald treatment, because it could be applied instantly, and promised immediate results if successful.

Calling one of the dentists to make strong pressure over the first joint of one thumb, the doctor grasped the other thumb. This simple, apparently foolish treatment was maintained for three minutes. The patient began to show signs of relief. The drawn

lines on her face softened. She could bear without shrinking the touch on her neck.

The doctor sent for a glass of water, and held it to the patient's lips. She took a sip of water, which she swallowed with much difficulty and pain, — the first drop in five days.

"It is the most delicious thing I ever tasted," she whispered.

She swallowed about a third of a glass upon her first attempt. The pressures were continued intermittently for about an hour, and within that time she was able to drink four glasses of water and a glass of malted milk. A light rubber band was placed over her thumb joints, and she enjoyed her first night's sleep since the inflammation had developed.

The next morning she reported that she was almost entirely relieved. The swelling was hardly perceptible, and she could bear reasonable pressure over the glands without

discomfort. She had no difficulty in swallowing. In a few days she was fully recovered.

The theory that the FitzGerald method owes its success to suggestion will not hold water. In the first place, it doesn't matter whether or not the patient believes in it, and belief is an essential in suggestion, nor whether he knows what the doctor is doing, — which, if the FitzGerald method were some form of hypnosis, also is indispensable. Then, too, the treatment works with the certainty of a problem in mathematics. If the pressure is not made in the proper zone and in the proper way, and for a sufficient length of time, inevitably the results will be negative.

There doesn't seem to be any reasonable hypothesis developed thus far to explain the FitzGerald method, but the plain facts are interesting scientific men, even if they are not ready to accept the treatment.

And so we now understand why we grind

our teeth. We do so because the action causes a relief of nerve tension, and a diminution of pain in all the zones of the body connected by those invisible and as yet undiscovered nervous wires strung through the telegraph poles of the teeth.

When we grab our bruised shins we check the transmission of pain in the irritated nerve trunk lines of that zone. When we grasp the arm of the dental chair, and hang on like grim death, we are unconsciously going through motions that, if continued long enough, would have made our trial comparatively painless. The only fault in our preparation for the ordeal was that we should have started our pressure grip three or four minutes earlier. But our intentions were good.

When automatically we clinch our fists in furious anger, we are relieving our terrific nervous excitation, and thereby perhaps preventing the bursting of a blood vessel.

When we clasp the hands of one sorely stricken and in the throes of despair, we are, in addition to supplying him with comforting magnetism and physical solace, producing a distinctly analgesic and quieting effect upon his entire nervous system.

And when we clasp our hands or press the fingers tightly together in supplication, we are ministering to overwrought nerves, and thereby perhaps bringing ourselves into closer harmony with the great Cosmic Force that envelops us in a mantle of kindness and love.

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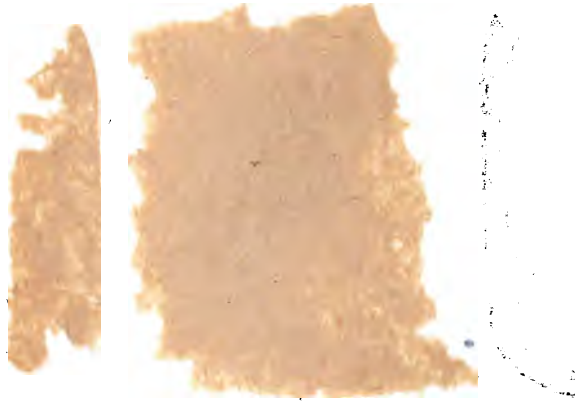
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